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13 th McCahan Education Day

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



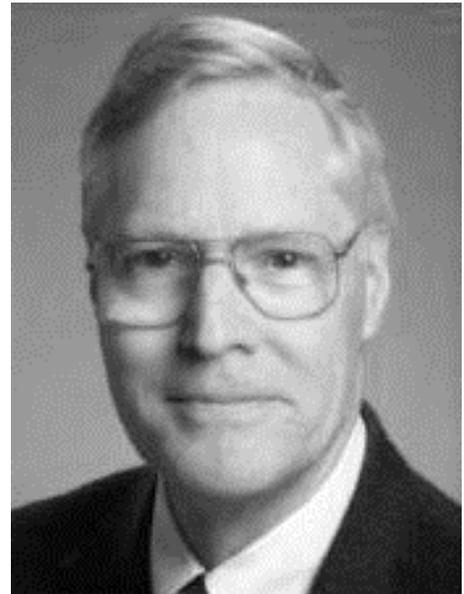
Wednesday, May 30, 2018

School of Medicine
Division of Graduate Medical Sciences
School of Dental Medicine
School of Public Health

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 regularly preceptored 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



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busmdean@bu.edu

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

May 30, 2018

Dear Colleagues,

Welcome to the 13th annual John McCahan Medical Campus Education Day. Dr. McCahan served as distinguished Associate Dean for Academic Affairs at Boston University School of Medicine for 30 years. We are pleased to offer Boston University medical campus educators a day of stimulating speakers, workshops, and innovative ideas to inform and inspire.

Our keynote speaker this year, Hope Ricciotti, MD, is the Chair in the Department of Obstetrics & Gynecology at Beth Israel Deaconess Medical Center (BIDM), and an Associate Professor of Obstetrics, Gynecology, and Reproductive Biology at Harvard Medical School (HMS). Dr. Hope's prior roles include Division Director in Obstetrics and Gynecology, Vice Chair for Education, and Vice Chair. At HMS, Dr. Ricciotti is the Co-Chair of the Resident as Teacher Interest Group for the Harvard Medical School Academy, and was formerly the OB-GYN Clerkship Committee Chair and a member of the HMS Curriculum Committee. Her academic interests include resident-as-teacher and leadership curriculum development and training, and culture change in academic medicine. She practices obstetrics and gynecology at BIDM. Her clinical interests are in reducing health care disparities, and she practices obstetrics, advanced contraception, and ambulatory women's health care. She has published manuscripts on innovative use of open space for enhancing the culture of academic medicine (*Academic Medicine*, 2014); the disparity in representation of women in leadership roles in obstetrics and gynecology (*Journal of Obstetrics and Gynecology*, 2015, 2016); objective structured teaching evaluations (OSTE) and innovative curricula for training residents as teachers (*Medical Teacher*, 2012, *MedEdPortal* 2013, 2015). She has authored textbook chapters and edited books in OBGYN and women's health. She is a highly sought-after speaker and has given presentations throughout the United States and China on leadership, culture, and education in academic medicine. She also educates the public, and is the Editor-in-Chief for Harvard Women's Health Watch, Harvard Health Publications and is a regular blogger for the Harvard Health Blog. She is the co-author, along with her chef-husband, of five health-related cookbooks, and was a member of Oprah's women's health tour.

Posters and oral presentations will cover a variety of topics to aid our educators in improving and reevaluating how we teach students, including: evaluation, testing and assessment techniques, educational models and methods.

This day is an opportunity to consider your teaching ideologies and connect and dialogue with your colleagues.

Sincerely,

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

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

ACKNOWLEDGMENTS

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

The John McCahan Medical Campus Education Day Planning Committee:

School of Medicine

Theresa A. Davies (Medical Sciences & Education)
(Co-Leader of McCahan Day)
Fadie Coleman (Medical Sciences & Education)
Paige Curran (Office of Academic Enhancement)
Maura Kelley (Medical Sciences & Education)
Elaine Lee (Medical Sciences & Education)
Stacey Hess-Pino (Medical Sciences & Education)
Hee-Young Park (Medical Sciences & Education)

Mary Morse (Office of Faculty Affairs)
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Jeffrey Schneider (Emergency Medicine)
Jodie Trainor (Office of Medical Education)
Aaron Young (Physiology)
Ann Zumwalt (Anatomy & Neurobiology)
Elizabeth Yellen (Office of Academic Affairs)

Henry M. Goldman School of Dental Medicine

Alexander Bendayan (Restorative Sciences & Biomaterials)
Hiroshi Hirayama (Restorative Sciences & Biomaterials)

BU School of Public Health

Taryn Vian (Global Health)
Sophie Godley (Community Health Sciences)

Alumni Medical Library

Alissa Link

BUMC IT, Educational Media

Jana Mulkern
Kenith Wilson

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
Division of Graduate Medical Sciences, Boston University School of Medicine
Office of the Dean, Boston University Goldman School of Dental Medicine
Office of the Dean, Boston University School of Medicine
Office of Medical Education, Boston University School of Medicine
Office of the Dean, Boston University School of Public Health
Office of Facilities Management and Planning
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Alumni Medical Library

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

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Schedule of Events

2018 THEME Teaching to the Millennial Generation

8:15-8:45 a.m. **Registration / Breakfast / Visit Vendors**

8:45-9:00 a.m. **Welcome**
Karen Antman, MD
Provost, BU Medical Campus

9:00-10:10 a.m. **Keynote Lecture: *Leadership Redefined***
Hope Ricciotti, MD

10:10-10:15 a.m. **Vendor Introduction**

10:15-10:30 a.m. **Break/Travel to Workshop**

10:30-12:00p.m. **Workshops**
Workshop A – Room L 201
 Negotiation in Action: Obtaining Your Goals Through Positive Discourse
Workshop B – Room L 203
 How Diagnoses Are Made
Workshop C – Room L 206
 Using Workforce Data to Guide Curriculum Development and Career Decisions
Workshop D – Room L 209
 Can You Hear Me Now? Improving Feedback Exchange with Colleagues,
 Trainees and Students
Workshop E – R 107
 Practera, A Learning Management System For Practice-Based Teaching and
 Learning
(See p. 12 for descriptions and locations)

12:00-1:00 p.m. **Lunch / Networking / Visit Vendors**

1:00 – 2:00 p.m. **Deans' Panel: *Teaching Millennials***
 Moderated by Brad Wheeler, Ph.D., Learning Experience Designer, BU Center
 for Teaching & Learning
Panelists:
 Barbara Schreiber, PhD, Division of Graduate Medical Sciences
 Frederick Hains, DMD, Henry M. Goldman School of Dental Medicine
 Priya Garg, MD, School of Medicine
 Trish Elliott, Dr PH, School of Public Health
(See p. 21 for descriptions)

2:00-2:30 p.m.

Awards

GMS Faculty Recognition Award
BUGSDM Faculty Appreciation Award Pre-doctoral Education
BUGSDM Faculty Appreciation Award Post-doctoral Education
BUSPH Educational Innovation Award

(See page 20 for descriptions)

2:30- 3:15 p.m.

Oral Presentations

Best Staff Abstract - Education Innovation & Research

*Preparing Medical Students To Interact With Patients With Autism
Spectrum Disorders (ASD) And Their Caregivers*

Lauren Busa, MA,¹ Elizabeth Ferriero, BA, CEIS,¹ Shari King, MA,¹ Marilyn Augustyn, MD,¹ Andrew Clark, MD,² and Sarah Qin, MBA¹
¹Department of Developmental and Behavioral Pediatrics, Boston Medical Center, and ²Department of Psychiatry, Boston University School of Medicine
(See abstract 7 listing on page 28)

Best Faculty Abstract – Education Innovation & Research

*A Unique Approach To Enhancing Dental Education – Can Games
Improve Learning?*

Frederick Hains, MS, DDS, Margaret Errante, MS, DDS, and Gurjinder Gill, MBA
Department of General Dentistry, Goldman School of Dental Medicine
(See abstract 15 listing on page 36)

Best Student Abstract – Education Innovation & Research

*More Invigorated and Less Burdened: A Qualitative Evaluation of a
Hospital-Based Narrative Medicine Program*

Pareesa Charmchi, MPH¹; Samantha Rosenblum, BS², Jamie Lim, BS²; Jane M. Liebschutz, MD, MPH^{3,4}; Sheela Maru, MD, MPH⁵

¹Boston University School of Public Health, ²Boston University School of Medicine, Class of 2019, ³Boston University School of Medicine, Department of Internal Medicine, ⁴University of Pittsburgh School of Medicine, ⁵Boston University School of Medicine, Department of OB/GYN
(See abstract 8 listing page 29)

3:15-4:30 p.m.

Poster session/Networking/Vendors (starting on page 19)

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



The banner features the NVivo logo in the top right corner. The main text reads "NVivo 12 is here!" in large white font. Below this, a blue bar contains the text: "NVivo supports the widest range of data sources and offers the most advanced analysis tools in qualitative research software." The background of the banner is dark with colorful, wavy, abstract shapes in shades of blue, purple, and green.

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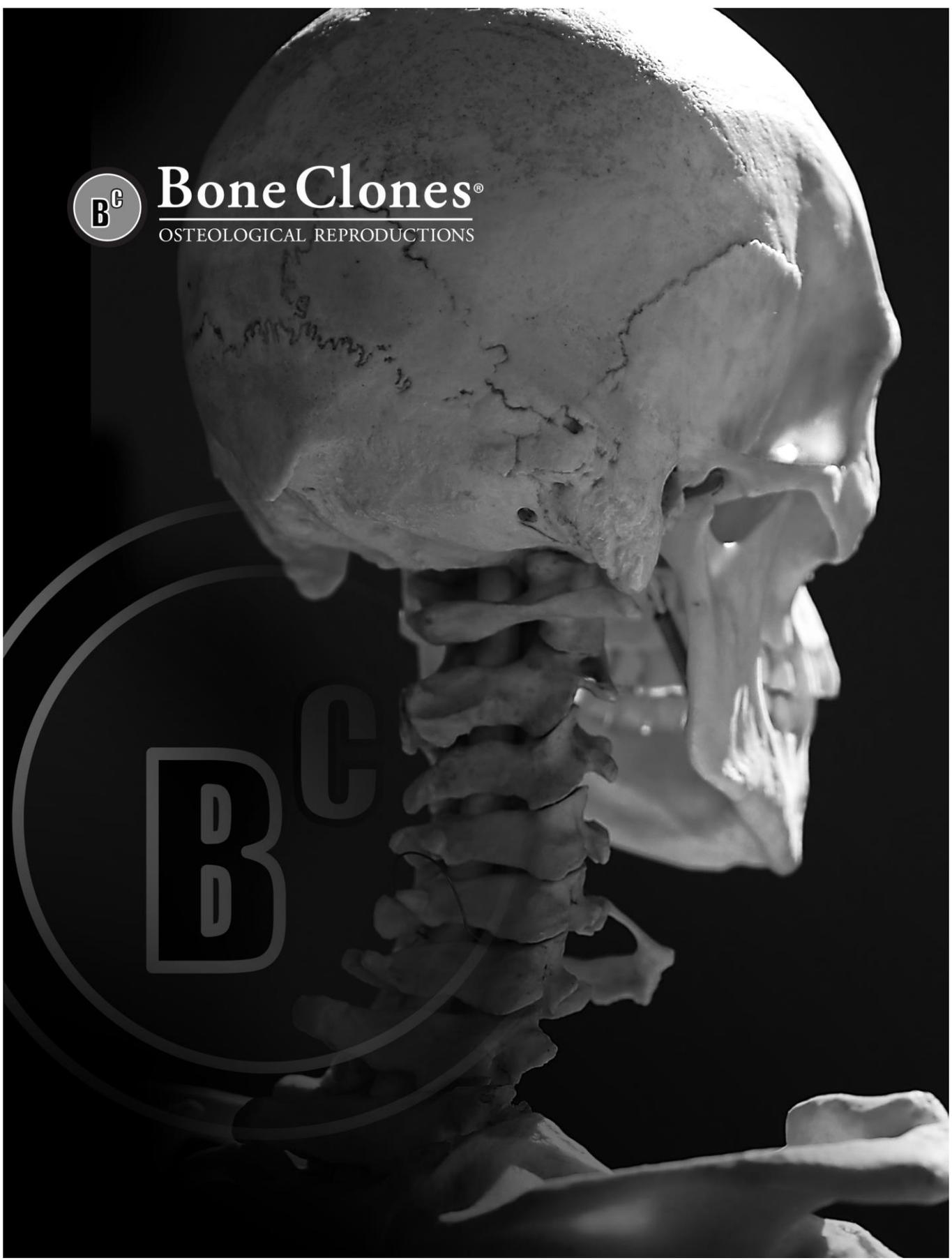
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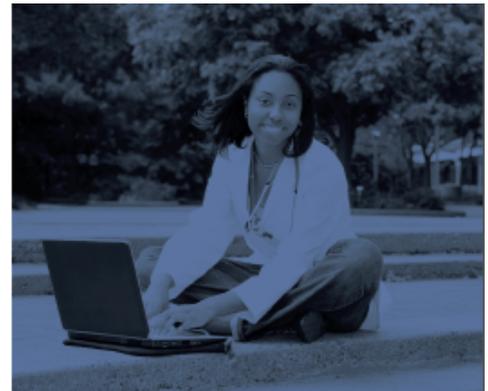


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WORKSHOP DESCRIPTIONS AND LOCATIONS

All workshops run concurrently from 10:30-12:00 PM

WORKSHOP A - Room L 201

NEGOTIATION IN ACTION: OBTAINING YOUR GOALS THROUGH POSITIVE DISCOURSE

Hope A. Ricciotti, MD
Department of Obstetrics and Gynecology, Beth Israel Deaconess Medical Center
Keynote Speaker

In this seminar, learners will be introduced to the process of negotiation and learn how to prepare for and optimize success in negotiations. They will complete a self-style negotiation assessment, and will practice in small groups to apply the skills learned.

Learning Objectives: By the end of the session, participants should be able to:

- Discuss factors that influence negotiation and negotiation outcomes.
- Recognize when to negotiate and how to prepare for and engage in a negotiation.
- Analyze your negotiation skills.
- Apply a strategy for negotiations going forward.

WORKSHOP B - Room L 203

HOW DIAGNOSES ARE MADE

Amanda Lerner, MD, Alexander Y. Sheng, MD, and Jeffrey Markuns, MD, EdM
Health Sciences Education Program, Graduate Medical Sciences

Goal: Describe the Dual Process Theory for diagnostic reasoning and how it applies to medical decision making.

Target Audience: Faculty clinical and pre-clinical educators across Boston University & Boston Medical Center

Rationale: For the layperson, how diagnoses are made is often a mystery. Physicians themselves often lack insight into their own internal thought processes that led them to a particular conclusion. There is a growing body of literature on the science of diagnostic reasoning. We intend to shed light on the traditional and current thinking into the diagnostic reasoning process culminating with Dual Process Theory. We will empower participants to develop a reflective approach to monitor one's own internal decision-making processes.

Learning Objectives: By the end of the session, participants should be able to:

- Summarize the history of research and theory on diagnostic reasoning.
- Explain the Dual Process Theory, the differences between System 1 and System 2 processes, and how/when each is used.
- Diagram a model of Dual Process Theory focusing on the interactions between System 1 and System 2 processes.
- Apply a reflective approach to monitoring internal decision-making processes.

Outline:

Facilitator and participant introductions (5 mins)

Hook (10 mins)

- Hand out one of two sheets to each participant.
 - Sheet 1 will ask the participant to think of a case when they came up with a diagnosis (for clinicians) or decision (for nonclinicians) based on their intuition and/or experience.
 - Sheet 2 will ask the participant to think of a case when they used deduction and/or logic to come up with a diagnosis (for clinicians), or a decision (nonclinicians).
- Ask for two participants to share their cases focusing on the thought process that led them to the diagnosis / decision.
- Description of workshop goal and objectives

Content chalk talk (10 mins)

- History of analytico-deductive reasoning
- Discussion of analytic vs. nonanalytic
- Description of Dual Process Theory

Small group work (groups of 3-5) (35 mins)

- Provide participants with a prediagram starting with "Illness Presentation" and then ending with "Diagnosis"
- Using knowledge from chalk talk and personal experience, each group diagrams their own version of how the diagnostic reasoning process works

Report out (group of 3-5) (15 mins)

WORKSHOP C - Room L 206

USING WORKFORCE DATA TO GUIDE CURRICULUM DEVELOPMENT AND CAREER DECISIONS

Barbara M. Schreiber, PhD,¹ Linda E. Hyman, PhD,² Jean Spencer, PhD,¹ Holly Nguyen, PhD,²
and Amanda F. Bolgioni-Smith³

Departments of (1) Biochemistry, (2) Graduate Medical Sciences, and (3) Pharmacology,
Boston University School of Medicine

How does your training program translate into jobs for your trainees? Are you enabling skill development to meet job market needs? The process by which Boston University's Broadening Experiences in Scientific Training (BU's BEST) guides curriculum development and career decision-making in the biomedical sciences will be presented. A method is introduced whereby workforce data are generated with an online software tool called Labor Insight™. Information on job availability in various biomedical career tracks is collected, along with the skills required to secure the jobs. These data help guide our advice to trainees as they consider the skills they should master in order to achieve their ultimate career goals. Moreover, the data guide our development of course and workshop offerings, enabling a dynamic curriculum informed by workforce needs. By working on cases in teams, participants will learn to use with the data. Although the workshop revolves around employment in the biomedical science sector, the process can be applied to curriculum design in other disciplines and degree-granting programs.

Target Audience: Faculty/staff/administrators/trainees interested in learning how workforce data can be used to guide both curriculum design and career decisions.

Rationale: BU's BEST strives to support faculty, staff, administration and the training community to learn about the diverse career options available in the biomedical workforce as well as the skills required to move into these roles. As workforce needs change, curricula must also change so as to better prepare trainees for workforce demand. We are data-driven so why not take job market data into account in making curriculum decisions? This workshop demonstrates a process whereby workforce needs can be considered in making these decisions.

Learning Objectives: By the end of the session, participants should be able to:

- Learn how Labor Insight™ is being used to inform curriculum development.
- Learn how to apply workforce data to help trainees make informed career decisions.
- Work on a case to apply the knowledge learned to consider a change in curriculum.
- Work on a case to apply the knowledge learned to guide trainees through the career exploration process.

Outline:

- Overview of Labor Insight™ (20 mins)
- Work on cases in small groups (40 mins)
- Groups report back to the larger audience (15 mins)
- Wrap up and questions (15 mins)

WORKSHOP D - Room L 209

CAN YOU HEAR ME NOW? IMPROVING FEEDBACK EXCHANGE WITH COLLEAGUES, TRAINEES AND STUDENTS

Craig Noronha, MD, and Sonia Ananthakrishnan, MD
Department of Medicine, Boston University School of Medicine

Feedback is a valuable tool that describes an individual's performance in a specific activity. Feedback exchange is commonly utilized by all members of an academic institution including students, residents, fellows, staff, and faculty. Within each training level, specialty, and position, there are specific needs and barriers in relation to giving and getting feedback. Creating a universal language and culture of feedback exchange is vital in the development and improvement of clinical and professional skills.

This workshop session is intended to help faculty and staff improve feedback exchange with students, residents, fellows, staff, and faculty. Participants will identify specific needs and barriers for feedback exchange in regards to giving and getting and feedback. The presenters will review principle concepts of feedback. This workshop will include interactive skills practice using feedback related tools and cases. Facilitators will also specifically highlight feedback exchange tailored to specific settings such as clinical care, procedures, and in the classroom. The session will include discussion for handling challenging feedback exchanges of a sensitive nature.

Target Audience: Student and trainee educators, including course and program directors/administrators who are interested in improving feedback exchange in the clinical, classroom, and research settings.

Learning Objectives: By the end of the session, participants should be able to:

- Define the elements of feedback.
- Review root components of delivering feedback.
- Describe distinct goals and barriers to feedback exchange based on setting and role.
- Practice giving feedback in specific scenarios.

Outline:

Introduction (5 mins)

Large (5 mins) **and small group** (15 mins) **discussion**

- Describe stakeholders in feedback exchange
- Identify goals and barriers in feedback exchange pertinent to different settings

Didactic (10 mins)

- Define elements and root components of feedback
- Introduce feedback tool

Small group skills practice #1 (10 mins)

- Utilize feedback tool in specific cases

Large group discussion (10 mins) **and small group skills practice #2** (15 mins)

- Managing negative feedback and case studies

Small group discussion (15 mins)

- Giving feedback of a sensitive nature

Wrap up with Q&A (5 mins)

WORKSHOP E - Room R 107

PRACTERA, A LEARNING MANAGEMENT SYSTEM FOR PRACTICE-BASED TEACHING AND LEARNING

Jacey Greece Dsc MPH, James Wolff MD MPH MAT, Nikki James MBA DEd, Meliza Varsovia MPH, Zak Gersten MPH

Do you ever struggle with getting feedback from faculty, clinical supervisors or clients assigned to work with, mentor or supervise students? When you're working with student teams, do you ever wish you had data that could tell how teams are communicating with each other or with their mentors? Would you like a systematic way of tracking your interventions to improve team dynamics? Would you like to have your course available to students on their phone or on a tablet? This session aims to familiarize faculty, staff and supervisors interested in exploring the use of Practera, a learning management system (currently in its 3rd semester of piloting with grant funds from BU's Digital Education Incubator), which is designed specifically for practice-based teaching. Participants will get hands-on experience with the platform, learn the fundamentals of creating a course on Practera, and view the various components of the system from the student, faculty, and client-mentor perspective.

Target Audience: Faculty and staff interested in taking a practice-based course to the next level through enhanced collaboration with clients, preceptors, PIs, or external mentors/partners and the development and use of data analytics for assessment. Faculty interested in developing a practice based course.

Rationale: In public health, medicine, and dentistry opportunities to build skills and competencies under real world situations are critical to developing competent practitioners. Practice-based teaching and learning in the classroom and in the field is the pedagogy that is now recognized to provide these opportunities and is expanding in all graduate programs in health sciences. Practice-based teaching and learning, often called service learning or project-based learning, requires a three-way partnership; between the student, the faculty, and a project or practice mentor (usually from an external organization). Managing this partnership, tracking the students' progress working with mentors within and external to the school, and obtaining quality data for assessment have been perennial challenges for faculty involved in this type of teaching. Practera, a learning management system developed by Intersective, is a platform specifically created for practice based teaching and learning. Designed so that all partners can collaborate, it provides data analytics for managing both student-team and team-client relationships and for assessing student and team performance.

Learning Objectives: At the end of this workshop, participants will be able to:

- Explain how Practera supports practice-based teaching and learning;
- Develop hands on experience navigating a course on Practera
- Describe Practera analytics and how to set up a dashboard to monitor student-client relationships and assess student performance
- Explore the use of a mobile app (your course on a smartphone or tablet)

- Explore the resources and support needed to use Practera at scale

Outline:

Session will take place in the computer lab.

Overview (10 minutes): brief introductions, review of learning objectives, for participant input on what they hope to gain from the session

Hands-on demonstration of Practera (30 minutes). Participants, guided by the workshop leader, will gain experience navigating an existing course

- Structure
- Assessments

Data analytics: (20 minutes) demonstration, review and discussion

Mobile Applications: Participants will download a course to their phone and explore the course on their phone (15 minutes)

Wrap Up (15 minutes): Pedagogical discussion time and Q & A.

DEAN'S PANEL: TEACHING MILLENNIALS



Brad Wheeler, Ph.D., Learning Experience Designer, CTL

The Center for Teaching & Learning (CTL) partners with faculty to cultivate teaching that is inclusive, centered on student learning, and guided by research. The CTL offers individualized consultations, workshops, seminars, and institutes designed to promote critical reflection and experimentation in teaching, including the purposeful use of technologies.

Brad Wheeler, a Learning Experience Designer at the [Center for Teaching & Learning](#) helps faculty transition their teaching to incorporate student-centered pedagogical practices that incorporate education technology. He works on projects that include the university's first campus-wide general education curriculum known as the BU Hub, programming for Adobe Creative Cloud software, and initiatives directed at blending/flipping the classroom. Brad's programs bridge across the Educational Technology team and the Digital Learning & Innovation (Office of the Provost).

PANELISTS



Priya Garg, MD, OME Director, Assistant Dean OAA, BUSM

Dr. Garg completed her pediatric residency and chief residency at the University of Maryland Medical Center. After completing her training, she joined the faculty at Tufts Medical Center and Tufts University School of Medicine. At Tufts, Dr. Garg served in several leadership roles across the continuum of medical education including Pediatric Clerkship Director for Tufts University School of Medicine (2008-2010), Pediatric Residency Director (2010-2017) and as the Associate

Director for Graduate Medical Education Quality and Safety (2014-2017). Here academic interests are in assessment in medical education and educational quality improvement. Dr. Garg works clinically as a pediatric hospitalist in the Department of Pediatrics at Boston Medical Center.



Barbara M. Schreiber, PhD, Associate Professor, Biochemistry, GMS

Dr. Schreiber is the Director of the PhD Program in Biomedical Sciences within the Division of Graduate Medical Sciences (GMS) and Director of Graduate Studies in the Department of Biochemistry at Boston University School of Medicine. She serves as course manager for the biochemistry course taught to first year Goldman School of Dental Medicine DMD students and GMS MS in Oral Health Sciences students. Dr. Schreiber is a co-principal investigator for the

National Institutes of Health-funded "BU's BEST" (Broadening Experiences in Scientific Training) award, which is dedicated to enabling biomedical trainees to realize their career goals and fulfill workforce needs



Fredrick Hains, DDS, Associate Clinical Professor, Department of General Dentistry, Henry M. Goldman School of Dental Medicine

Dr. Hains is a full time Associate Clinical Professor and course director for the Treatment Planning and Patient Management program. Dr. Hains is also the creator and the course director for the Advanced standing program and the Doctor of Dental Medicine (or DMD) program. DMD students are exposed to this course in their last two years of training. His background includes the operation of a hospital-based outpatient dental clinic, while maintaining a private practice for over 30 years as well as serving as part time faculty for the Dental School before becoming full-time. Dr. Hains trained at the University of Maryland Dental School, completed a Hospital-based General Practice Residency with the US Public Health Service and was a Fellow of the Academy of General Dentistry, International Team for Implantology and the International College of Dentistry.



Trish Elliott, DrPH, MPH, Clinical Assistant Professor, Community Health Sciences, School of Public Health

Dr. Elliott is a Clinical Assistant Professor of Community Health Sciences at the School of Public Health. She teaches courses in the health of individuals and populations, program management, and maternal, child and adolescent health. Dr. Elliott uses a combination of simulation, case method, and practice-based learning in the classroom and is committed to using innovative

approaches in academic-practice collaboration. She directs the Practice Fellowship Program of the Maternal and Child Health Center of Excellence, and serves as the Director of the Master of Social Work and Master of Public Health dual degree program. Dr. Elliott's academic and practice interests focus on using management and systems science methods to improve the health of vulnerable populations.

JOHN MCCAHAN MEDICAL CAMPUS EDUCATION DAY AWARDS

BUSM Office of Academic Affairs Voluntary Faculty Award of Excellence

This award honors our voluntary faculty members, community-based physicians who teach medical students and/or residents in one of BUSM's external teaching programs or travel to BUMC to teach on campus. These individuals are honored for their commitment to teaching, quality of teaching, impressive student evaluations and their overall commitment to the teaching mission of BUSM.

BUSM Office of Academic Affairs Excellence in Service Award

The Office of Academic Affairs' Excellence in Service Award was established in recognition of BUSM Administrators and Staff whose outstanding work within the curriculum supports the success of the school, faculty, and students. Areas of excellence can include, but are not limited to service, leadership, innovation, and/or teamwork.

GMS Faculty Recognition Award

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

BUGSDM Faculty Appreciation Award Pre-doctoral Education

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

BUGSDM Faculty Appreciation Award Post-doctoral Education

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

BUSPH Educational Innovation Award

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

ABSTRACT THEMES FOR POSTER PRESENTATIONS

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 1-4

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 5-35

*** ABSTRACTS ARE ORDERED ALPHABETICALLY BY THE LAST NAME OF THE PRIMARY AUTHOR**

1

TEACHING COMPLEX CONCEPTS IN PATIENT SAFETY

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The objective of this scientific exhibit is to share a novel approach to teaching complex concepts in patient safety utilizing illustrated stories. Safe and efficient patient-centered care is a top priority in current healthcare discussions. However, most educational materials on patient safety are text-based. In this digital age, learners expect content to be not only visually engaging but personally relevant. This exhibit presents a series of illustrated stories using ultra-high definition video that have been produced to accompany an innovative publication on patient safety. These illustrated stories make complex concepts, such as fixation and communication errors, relevant and memorable. They also offer techniques and strategies aimed at preventing errors before they occur, applicable to all specialties and healthcare settings. Learners are immersed in lifelike scenarios and engaged through the power of storytelling and analogy, highlighting key concepts from chapters in the physical text. This exhibit will consist of posters detailing the design process the team employed in creating this instructional tool, and its implementation in the healthcare setting. Video monitors will display examples of the illustrated stories and lessons, allowing attendees to engage and interact with the presentation.

ROUNDING REFRESHER

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The fundamental importance of basic science training in the practice of medicine and medical education is not novel and was made clear in the Flexner Report of 1910. This report sought to streamline medical education by taking it from an apprentice model to that of an academic model that is common across most US medical schools. Although the importance of basic science in medical training remains high, the incorporation of many other disciplines into medical training including behavioral, ethical and business management practices has reduced time previously designated for study of the basic science underlying clinical disease pathology, diagnosis or treatment. The concept of the Rounding Refresher was developed to enhance the inclusion of basic science in training residents and medical students. The Rounding Refresher will be a web-based tool that focuses on the basic biology that is altered in the course of infections and diseases commonly seen in the in-patient setting in the context of internal medicine, particularly at Boston Medical Center. The intended audience for the tool is the busy attending physician, resident or medical student and will provide an accessible centralized location for brief yet pertinent materials that would enhance its users' understanding and ability to effectively treat these common infections and diseases. This tool will also be able to be regularly amended by users as one of the critical challenges in the inclusion of basic science to medical education is keeping up with the pace of scientific discovery. We believe that a tool that is designed collaboratively by both basic and clinical scientists and is not restricted to a paid subscription will encourage and enable the further inclusion of basic science into the practice of medicine.

EDUCATION IN THE PALM OF YOUR HANDS

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Introduction: Dental school can often be a strenuous and chaotic place. Students are engaged in a rigorous 4 year curriculum that involves both didactic and preclinical courses meant to prepare students to be competent clinicians. Dental schools always strive to be current with technology and teaching principles to better reinforce student learning. However, when students get to clinic, their mindset often changes with the goal of fulfilling requirements to ensure on-time graduation. This, in tandem with students continued learning experiences, can make the clinic a stressful environment.

With the growth of technology in the millennial era, students' expectations are different. Millennials are more engaged and involved with their smartphone devices than previous generations. This is finding favor amongst educators as an outlet to reach students on a more technological level. Students' pre-clinical performance does not always translate into the clinic. In 2015, Barrero et al. found that less than 60% of students felt prepared for planning complex cases and performing laboratory-related procedures.

We have designed a mobile application to act as a quick reference allowing students to be better prepared for clinic and create a more efficient procedure/patient workflow. Students will be better able to organize their thinking, not worrying about the materials and procedures they will be executing.

Methods: The application will house a series of videos that are procedure- and discipline-specific, alongside a checklist for each of those procedures, students will be able to use their smartphone to quickly access any information they need in order to make their patient appointments more fluid and efficient. The checklist will include the necessary armamentarium and list of materials needed from the dispensary. Each procedure will also have a step-by-step "how-to guide".

INCORPORATION OF WIKIEDUCATION INTO THE CLASSROOM

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In Wiki Education's Classroom Program, university instructors assign students to write Wikipedia articles, empowering them to share knowledge with the world. Students research course-related topics that are missing or underrepresented, synthesize the available literature, and use WikiEducation's free tools and trainings to add the information to Wikipedia (<https://wikiedu.org/teach-with-wikipedia/>). I decided to try this approach to introduce students to writing for the lay public, and to provide a mechanism by which a particular assignment would have value extending well beyond their own personal sphere. I described the project to the students, and allowed them to vote on whether they wanted to proceed with the approach. The students enthusiastically embraced the idea, and voted unanimously in favor of doing the Wikipedia assignment.

WikiEducation provided an expert to guide me through the process. WikiEducation also provides a very helpful user interface, termed the "Dashboard". The Dashboard creates a general timeline for the course, which they then personalize to the length of your class. To begin the process, both myself and each student needed create a Wikipedia account, and to take the tutorials. I incentivized the students to complete the registration and tutorials by week 3 by awarding any student who accomplished this 5 points for signing up and 5 points for finishing the tutorials. Next the students chose topics. Wiki Education provides a web based tool that identifies pages in need of work, based on the particular area of study. [This tool](#) (a table listing the pages, color coded to convey the need for improvement) proved to be incredibly helpful and allowed the remaining students to choose pages; not every student used the tool, but it proved very useful for some students.

Upon start of the editing phase, I conveyed to the students how I would grade their work on the articles. Next students edited the pages. The Timeline provided clear mileposts for the editing, and included a specific point when students would review each others' new pages. Meanwhile, WikiEducation provided expert support for me, and also set up conference sessions to allow interactions between faculty at different universities who were pursuing the WikiEducation program. At the end of the class, I compared the new page to the original page and provided a grade.

The professionals at WikiEducation were very impressed and enthusiastic about the pages. The students were actually hesitant to post the pages, but the program managers at WikiEducation directly contacted me to compliment the pages, and encourage the students to post the pages. With a bit of prodding on my part, the pages were posted. The final feedback from students about the process was very positive. They said that they really enjoyed the experience, and benefited from the experience of writing for the lay public; however they also said that they would not want to do this for multiple classes.

MOVING FROM GOOD TO GREAT IN GRADING: ANALYZING GRADE TRENDS USING THE NEW BUSM RUBRIC COMPARED TO THE PT-RIME RUBRIC, IN THE MEDICINE 1 CLERKSHIP

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Background: Boston University School of Medicine's student assessment tool in the clinical years, the CSEF (Clinical Skills Evaluation Form) was recently modified to more accurately document observable student behaviors across 13 domains that match the expectations for BUSM 3rd and 4th year clinical medical students. This new CSEF was implemented standardly across clerkships for the 2017-2018 academic year. Previously, the BUSM Medicine 1 3rd year clerkship used an assessment rubric, PT-RIME, based on RIME, a validated evaluation method. PT-RIME qualitatively measures students across five domains including Professionalism, Team, Reporter, Interpreter, Manager, and Educator. Our specific aim is to understand changes in assessment and grading in the Medicine 1 clerkship using the new CSEF in comparison to the previous PT-RIME method.

Methods: For the Medicine 1 Clerkship, all students were graded as per school protocol using the new CSEF score quantified into their final grade. The Medicine 1 clerkship directors also scored students using the old PT-RIME rubric to provide supplemental descriptions in the student grades. Data analysis is being conducted to compare grades from the new CSEF and the old PTRIME method, and assess a magnitude of correlation using R and SPSS. Regression modeling will assess how predictive the CSEF grade was of the final grade. Order of clerkships in 3rd year, order of clerkship sites in Medicine 1, time in academic year of Medicine 1, and gender of student are other variables that will be analyzed in relation to CSEF and PT-RIME scores.

Results: We anticipate that the results from the 6 medicine blocks of the 17-18 academic year, graded using both the CSEF and PT-RIME methods will be analyzed for trends and patterns.

Conclusions: We plan to use this data to inform how to best use the CSEF in 2018-2019, and what our grading thresholds should be. In addition, we look to understand how to most effectively use the CSEF form in clerkship grading and how to guide faculty development in evaluation in the Department of Medicine.

ROBOTIC DISMEMBERED PYELOPLASTY SURGICAL SIMULATION USING A 3D-PRINTED SILICONE-BASED MODEL: DEVELOPMENT, FACE VALIDATION, AND CROWDSOURCED LEARNING OUTCOMES ASSESSMENT

Hersh Bendre, BSc, BUSM, Class of 2019; Archana Rajender¹, MD; Phil Barbosa¹, MD; Shaun Wason¹, MD; Department of Urology, Boston University School of Medicine

Background: Ureteropelvic junction obstruction (UPJO) is an uncommonly encountered urologic pathology and training residents to perform robotic dismembered pyeloplasty poses unique challenges. We describe the development of a robotic pyeloplasty simulation using a 3-dimensional (3D) printed model of UPJO for surgical training. In addition, we demonstrate the use of a crowdsourced platform to objectively assess surgical performance and learning outcomes.

Methods: The organs (kidney, renal pelvis, and ureter) were created using 3D modeling software and printed using a silicone-based material. The model was secured in a laparoscopic box trainer and the da Vinci robotic system was docked. 6 urology residents and one urology faculty member independently performed a robotic-assisted right dismembered pyeloplasty on two separate occasions. Face validity was demonstrated on a 5-point Likert scale. Crowd-Sourced Assessment of Technical Skills (C-SATS Inc., Seattle, WA, USA) scored surgical performance using a validated assessment criteria, based on video review of each simulation.

Results: All participants completed the simulation twice with fully patent anastomoses. Average time to complete the initial procedure was 52 ± 13 minutes. 43% of participants improved their time on the second attempt. Participants rated (out of 5) 4.1 ± 0.4 for overall feel of the model, 3.7 ± 0.5 for realism, 4.7 ± 0.5 for usability, and 4.9 ± 0.4 for suturability. 57% reported feeling very or extremely confident that they could perform a complete anastomosis by the end of the study, compared to 29% prior to the simulations. All participants felt that this simulation was a useful addition to their surgical training.

Conclusions: Using 3D-printed models, participants were able to perform 2 complete robotic pyeloplasties. The model's usability, realism, suturability, and resultant improvement in participant confidence show promise as an educational tool for surgical skills acquisition for infrequently encountered pathology.

PREPARING MEDICAL STUDENTS TO INTERACT WITH PATIENTS WITH AUTISM SPECTRUM DISORDERS (ASD) AND THEIR CAREGIVERS

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**** Best Poster Award**

Background: Although Autism Spectrum Disorder (ASD) is on the rise, with 1 in 68 children being diagnosed, multiple studies show that general pediatricians do not feel adequately prepared to care for children with ASD and desire more training in addressing the needs of this population. Previous efforts suggest lectures featuring parent panelists improve students' ability to work with patients with ASD.

Methods: As part of BMC's Autism Friendly Initiative, we partnered with Dr. Andrew Clark, Boston University Medical Center Director of Psychiatry Medical Student Education, to establish a standing rotation of presentations to third-year medical students about how to best interact with patients with ASD. Presentations feature a parent panel comprised of members from BMC's Parent Leadership in Autism Network (PLAN), who share personal experiences, tips and strategies for medical providers, in both lecture and discussion format. Students are also assigned reading on the management of patients with ASD, published by the American Academy of Pediatrics.

Results: Pre and post surveys have been administered, and initial data suggests that this is an effective educational approach. Students rated how familiar they were with ASD on a scale of 1-5, and the average rating increased from 3.26 to 4.04. The average student rating on familiarity with techniques for accommodating patients with ASD also increased from 3.26 to 4.04. When asked how the presentation might influence future patient interactions, one student wrote, "[The tip about] presuming competence reminds me to talk to patients, tell them what's happening, and make things clear!"

Conclusion(s): Our preliminary efforts on developing training for medical students suggest that our model can improve medical students' perceived comfort and knowledge regarding interacting with patients with ASD in the healthcare setting.

MORE INVIGORATED AND LESS BURDENED: A QUALITATIVE EVALUATION OF A HOSPITAL-BASED NARRATIVE MEDICINE PROGRAM

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**** Best Poster Award**

Introduction: “Us/Them: Provider Narratives of Trauma” was a six-month pilot program using narrative medicine to aid clinicians who care for patients with trauma histories. At each of six sessions, experts in narrative medicine and trauma advocacy introduced a theme related to trauma and wellness, to clinicians (medical students, residents, attending physicians, nurse practitioners and social workers) who discussed, wrote and shared narratives on that theme. We conducted a prospective, qualitative study to evaluate the program’s impact on participants’ abilities to relate to patients who disclose histories of trauma, as well as offer insight into implementing a hospital-based narrative medicine program.

Methods: We conducted semi-structured interviews with 12 of 18 total participants before the program, immediately after completion, and four months later. We conducted directed content analysis using predetermined codes from Rita Charon’s work on narrative medicine and de novo codes that emerged from participants’ interviews.

Results: Twelve participated in interviews, with 12 prior, 10 immediately after, and 10 four months later. All participants reported that patients had disclosed trauma. The main themes revealed through analysis are participants: (1) gained a sense of resiliency, (2) valued sharing experiences and perspectives with their colleagues, (3) thought the program reminded and inspired them to screen for trauma, acknowledge patients’ stories, and respond to patient needs, and (4) desired accountability for writing practice and participation. Participants reported overall satisfaction with the program. Participants’ feedback for implementing future hospital-based narrative medicine programs included a need for more structure and accountability.

Conclusions: The Us/Them narrative writing program positively impacted participants’ sense of resiliency and capacity for caring for patients with trauma. Participants particularly valued learning from their colleagues. The program should be adjusted to increase accountability of participants to write more consistently.

CAN COURSEWORK IN PHYSIOLOGY AND BIOCHEMISTRY SERVE AS POSITIVE PREDICTORS OF GRADUATE SUCCESS IN MASTERS STUDENTS MATRICULATING TO DENTAL SCHOOL?

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Purpose: BU Goldman M. School of Dental Medicine (GSDM) in collaboration with Boston University School of Medicine's Division of Graduate Medical Sciences implemented a pipeline program in 2005 to increase the diversity of pre-dental students matriculating to the GSDM. The Oral Health Sciences (OHS) master's program has been extremely successful with >90% of their enrolled students matriculating to dental school (n=184). We have previously shown that a strong performance in the OHS masters program ($p<0.001$) is predictive of future dental school success. Here we continue this work by evaluating academic variables during the OHS program that may serve as additional positive predictors for successful matriculation to dental school.

Methods: Students enrolled in OHS during the 2012-2016 were evaluated; undergraduate GPA, gender, and age, were collected from admissions records. Academic performance in the masters program was assessed by overall GPA, DAT scores, and final grades in two DMD courses OH 730 Physiology and OH 751 Biochemistry. Association between successful matriculation to dental school with each parameter was assessed with analysis of variance and the Chi-square test.

Findings: Pre-admissions data was gathered for a total of 129 enrolled OHS students; gender breakdown was 56% females and 44% males and the mean age was 24 ± 2 years. A total of 58% of students earned a B+ or better in DMD Physiology with 7% failing while more 65% performed better in DMD Biochemistry with comparable non-passing grades (6%). Undergraduate major and number of science course credits taken had no impact on OHS performance however students who took an undergraduate course in Physiology performed better than those who did not ($p=0.034$). This was not the case with undergraduate courses in Microbiology or Biochemistry. Students with DAT scores over 20 academic average ($p=0.001$), 18 total science average ($p=0.001$) and 22 reading comprehension ($p=0.004$) also performed better in both DMD courses.

Conclusions: The OHS masters program has previously been shown to be an excellent credential enhancing pre-dental pipeline program. Extending these results, we report here that both strong DAT scores and completion of an undergraduate Physiology course are positive predictors for a strong performance in OHS Physiology and Biochemistry courses and matriculation to dental school.

USING CLINICAL CASES TO PROMOTE EVIDENCE-BASED CRITICAL THINKING SKILLS

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Background: Trends in the healthcare education have supported the use of evidence-based critical thinking skills to promote clinical decision-making. Additionally, educators have demonstrated the advantages of problem-based learning pedagogies to promote basic science foundational topics using clinical case studies. Here we have piloted the use of two clinical case sessions in a graduate-level Evidence Based Dentistry course (GMS MS OH 770) to promote basic science learning with clinical reasoning and differential diagnoses skills using a PICO (Patient, Intervention, Comparison and Outcome) question and search skills to seek resources that best address the specific clinical question.

Methods: Graduate masters students in the Medical Sciences, Oral Health Sciences or Nutrition and Metabolism programs enrolled in GMS MS OH 770, took part in two case study sessions, assessed using Qualtrics and a Likert Scale. Case 1 Focused on Chemotherapy-Induced Oral Mucositis and Case 2 on Oral Manifestations in HIV Patients (Thrush) case. Each case included initial clinical symptoms, medical and social history, current medications and family history. This information was combined with results found on clinical exam guiding students to several differential diagnoses. Students in groups of two to four then developed a PICO question and looked for resources to best answer their question. Students were challenged to think like a clinician but also to critical think about the variables and data and then develop an analytical approach to seeking answers through MESH terms and focused searching.

Results: Forty-four students participated in the case sessions and 41 provided feedback on the session (93.18%) response rate. Students indicated their level of agreement to five questions: The case helped me to (1) Gain an understanding of the importance of an inclusive differential diagnosis, (2) Understand subjective and objective data when developing a differential diagnosis, (3) Identify the importance of gathering clinical, family/social history, current medications and allergies for a more complete clinical analysis. (4) Utilize strong search terms to aid in answering your PICO question and (5) Understand how differential diagnosis is affected when considering a healthy patient versus an immuno-compromised patient. Survey results from both Case 1 and Case 2 were very positive with 92.85% and 92.24% of students rating the session as positive (Agree and Strongly Agree). Positive comments such as “This has been so helpful to make a difference between good and poor articles. It also helps to make my searching easier through all of the articles available” were received.

Conclusions: Here we demonstrate the use of clinical case sessions in graduate level curriculum to promote evidence-based approaches with PICO questions to help students determine differential diagnoses and resources to see clinical answers.

PRACTICAL SELF-DIRECTED LEARNING FOR RESIDENTS INTERESTED IN BIG DATA RESEARCH

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Background: Big data encompasses a growing field in biomedical and health care research, characterized by large-scale datasets that frequently require novel practices to manipulate and analyze information. In 2013, the NIH launched the Big Data to Knowledge (BD2K) program, an initiative designed to optimize the usage of data science in health research. Concurrently, the availability of massive open online courses (MOOC) has revolutionized the landscape of adult education and continues to empower individuals to manage their own learning. As such, the use of MOOCs in residency/fellowship training may prove invaluable to promote involvement in clinical research. The following outlines the author's experiences with MOOCs designed to teach the fundamentals of data science and how it can be applied to modern health databases.

Methods/Outcomes: The author completed several online courses at DataCamp, an online learning repository for interactive videos teaching data science and machine learning. Access was obtained to MIMIC-III, a database comprised of inpatient admissions to the critical care units at the Beth Israel Deaconess Medical Center in Boston, MA between the years of 2001-2012. All work was completed in conjunction with any formal commitments to residency training. Subsequently, the author independently formulated research questions, analyzed data from MIMIC-III using the skills learned from online courses, and was able to present research at national medical conferences including CHEST and NCCN.

Discussion: The use of MOOCs and widely available health databases remains a viable avenue for residents interested in supplementing their knowledge of research methods. Although training can be completed outside of work commitments, program directors may choose to incorporate the use of MOOCs in residency training in several ways. This may include dedicated time to work on online coursework, formalized mentoring from faculty already involved in data science, or workshops directed to introduce fundamental concepts.

THE BUMC NARRATIVE WRITING PROGRAM (NWP): WRITING FROM THE FRONT LINES OF CLINICAL CARE, EDUCATION, AND RESEARCH

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Purpose: Narrative-based education for health science professionals shows promise for fostering communication, cultural competence, empathy, professionalism, and reflection to promote vitality and mitigate burnout. Narrative writing training can be instrumental for acquiring academic competencies, since faculty writing groups and workshops promote publications and presentations, improve writing skills, and bolster confidence in writing. We sought to design an educational program for Boston University Medical Campus (BUMC) faculty that would provide an opportunity to develop narrative skills and competencies through reflective writing, reading, and listening, while offering a framework for establishing empathic and collaborative teams.

Methods: We created the *Narrative Writing Program (NWP): Writing from the Front Lines of Clinical Care, Education, and Research*, a cohort-based course designed to guide faculty in engaging with writings relevant to their professional lives. Experiential seminars offer instruction on writing theory and practice, contextual information about literary narratives, discussion questions, and reflective writing prompts. Workshops provide participants with a venue for peer coaching on pieces developed outside of sessions, with the goal of aiding faculty in preparing at least one piece of narrative writing to a form suitable for submission to a peer-reviewed journal by the end of the course.

Results: We are piloting the NWP in the BUMC Department of Medicine from January-June 2018. Our 17-person cohort meets monthly to discuss theoretical and narrative pre-readings, respond to writing prompts, and workshop participant narratives. We have conducted evaluations throughout the program's conceptualization and implementation.

Discussion: Evaluation feedback thus far has been positive, with participants expressing increased self-efficacy and satisfaction with the program's provision of a designated time and space to contemplate and engage in writing. Some participants have stated that they plan to write more frequently as a result of the course.

IMPACT OF CALM PROGRAM ON MEDICAL STUDENT PERSPECTIVES ON SUBSTANCE USE DISORDER IN PREGNANCY: A PILOT YEAR

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Introduction: Cuddling Assists in Lowering Maternal and Infant Stress (CALM) is a service learning group that was established in November 2016 at Boston University School of Medicine (BUSM) and Boston Medical Center to address perinatal morbidity of neonatal abstinence syndrome (NAS). CALM aims to decrease rates of pharmacologic intervention for NAS via cuddling when caregivers are unavailable at the bedside, as well as provide formative clinical experiences to students in providing compassionate care for a vulnerable population and navigating sensitive topics. This study assesses the impact of CALM on medical student attitudes regarding substance use disorder in pregnancy.

Methods: Medical students at BUSM were contacted (n=668) via email to complete an optional, anonymous survey six months after initiation of CALM. Program volunteers attended a one-hour orientation, one two-hour shift per month, and two lectures regarding addiction. Results from volunteers (n=21) were compared to medical students not involved in CALM (n=14).

Results: Compared to other medical students, CALM volunteers more strongly agreed that women who use drugs can be good mothers, felt less angry towards individuals who use drugs, and were more comfortable providing supportive care to infants with NAS, talking with peers about substance use, and consoling infants ($p < 0.05$).

Conclusions: Working with infants with NAS allows volunteers to develop a deeper compassion for patients with substance use disorders and become more comfortable with related issues. We hope to expand program capacity, as well as inspire other medical programs to implement similar programs that address health disparities while enhancing medical education.

A UNIQUE APPROACH TO ENHANCING DENTAL EDUCATION – CAN GAMES IMPROVE LEARNING?

Frederick Hains, MS, DDS; Margaret Errante, MS, DDS; Gurjinder Gill, MBA

**** Best Poster Award**

Introduction

An application for a Digital Education Incubator Grant: Gamification for Dental Students – is being sought to validate the potential of game-based learning on complex subject matter within the dental school curriculum. We seek to understand whether gamification of the education process will have a positive impact through increased learning of subject matter, student participation and engagement, and student enjoyment of the learning process.

Web and mobile technologies are popular with the current generation: can we capitalize on this education? Learning facilitated by technology can strengthen a learning experience and gives students an element of control over the process. The Boston University Henry M. Goldman School of Dental Medicine aspires to be a leader in this digital learning space. Dental curriculum is usually taught in traditional lecture hall settings with students evaluated through examinations. This approach is problematic. Students do not have the opportunity to improve upon their weaknesses and the faculty does not receive collective feedback on areas which the whole class is struggling and therefore cannot take corrective action. This magnifies as the cohort moves on to more advanced subjects, resulting in demoralization and disengagement.

Gamification addresses these gaps through immediate feedback, mastering fundamental content, finding a balance between achieving objectives and catering to evolving needs. Games provide a safe environment to make mistakes and self-correct, and they motivate and ensure more engagement.

Methods

Volunteers from the third-year course in Dental Treatment Planning were sought, and 81 students out of a possible class of 111 completed the consent form to participate. A multiple choice question pre-test was given with 45 minutes to complete. This was considered the baseline. A quiz-style game was created and uploaded to the internet to be downloaded on a phone quiz app, “**DentalQuest**”. It contained 20 multiple choice questions testing the following areas: knowledge recall, knowledge understanding, and application of knowledge. The quiz was uploaded to Blackboard Learn for those without access to phone apps. Participants were given a period of months to participate and self-report results. In this time, students could participate in the quiz as often as desired. Upon completion of this phase, a survey was provided to get feedback on game design, mechanics, and overall usefulness. In a final step, the original pre-test was administered as a post-test to measure improvement.

Results

62 students completed all components of the research project: 36% males and 64% females. Post-test results showed an improvement of 1.77%. It was observed that the performance in the final course exam for this class when compared to that of the previous year's class was significantly better. 70% of the participants appreciated that the game was not timed, allowing students the opportunity for self-paced autonomous learning and encouraging research and exploration. 66% of the respondents declared that if designed properly, with features and enhancements that students are used to, the game could be a beneficial resource for students.

The participants split on the issue of using this as a method of instruction prior to class in order to improve learning of content. They were almost uniform in their desire for immediate feedback on their scores. They were divided on the fun and motivational aspects of the game.

Discussion

Treatment planning as a course topic is complex in its content and aspirations. Students arrive at this stage of their dental education with some understanding of clinical terminology, treatment options and principles but lack the critical thinking skills to apply that knowledge to diagnosis and recommending courses of treatment in case studies or real-world settings. The goals of the course are to have students:

- Remember and understand foundational knowledge
- Integrate and apply foundational knowledge
- Analyze and evaluate complex cases and create treatment plans for patients

The game provided a self-paced opportunity for students to solidify basic knowledge accumulated in prior years' courses and to test their ability to understand this information as well as apply it. The questions can be targeted to address these educational goals.

The game is a very promising tool that can operate autonomously once the questions have been designed and introduced into the game. This reduces the educational burden in the classroom and permits opportunities to address weaknesses or new concepts. The challenge is to make the game rewarding and engaging so that the competitive nature of a player can drive additional experiences. It was clear from this pilot study the students have very high expectations for game sophistication. This early version was problematic and may have resulted in reduced participation for that reason. Another observation made was students' needs to perceive value in participation. The typical motivators (grades or monetary reward for completion of tasks in a timely manner) were absent and may have affected participation.

Conclusion

This pilot study was an opportunity to see the effects of an innovative educational method in dental education. The results suggest that the game could be a beneficial resource to students to enhance their learning but that the approach requires improvements in design and enhancement of features.

We are encouraged by the findings of this pilot study and we expect it will open a discussion among the dental education community to explore new, innovative methods of education and prepare ourselves to serve a new generation of students in the best way possible.

DID YOU BRING YOUR MEDICATIONS WITH YOU? IMPROVING THE MEDICATION RECONCILIATION PROCESS IN A GERIATRICS AMBULATORY PRACTICE.

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Background: Medication reconciliation can reduce adverse drug events, medication errors, and hospitalizations, yet many patients don't bring medications/lists to their appointments. The aim of this project was to implement a patient education intervention to increase the percentage of patients bringing their medications to geriatric ambulatory practice appointments to improve medication reconciliation.

Methods: Patients were asked at their appointments if they brought their medications, and if not, why. The first PDSA cycle added the following sentence to the reminder phone call that patients receive the day prior to their appointment: "Please remember to bring your medications or an up-to-date list of your medications to your appointment. This is important to help us take the best care of you." A second survey was conducted to assess the rate of patients bringing medications or list to clinic. We used a chi-squared test to compare the proportions of patients who brought their medications to clinic before and after the intervention.

Results: During our initial data collection period, we surveyed 68 patients. 32% (27/68) brought their medications/list to clinic. Among those who did not bring medications/list with them, 43% "did not know they should" and 28% "forgot." After the reminder call, a new group of 64 patients were surveyed. The rate significantly improved to 50% (32/64; $p=0.04$). 51% of patients reported receiving the phone call reminder, and of those patients, the rate was most increased at 82% (27/33).

Conclusions: Patient education about the importance of accurate medical reconciliation, with a reminder phone call significantly increased the rate of patients bringing medications to clinic for accurate medication reconciliation. Given that the improvement rate was highest among patients who had received the call, future interventions such as an automated reminder phone call or written reminder are next steps to sustain change.

TEAM BASED LEARNING IN AN INTRODUCTORY BIostatISTICS COURSE

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Objective: The Introduction to Biostatistics course had previously been taught using the traditional didactic based approach. While the course evaluations were good, there were concerns about the course addressing course competencies. Some students had difficulty making connections between content taught in lectures and assignments. Students were also having difficulty putting together concepts taught across multiple lectures which caused issues with the group project. Instructors of advanced biostatistics courses said that students were not retaining information that was taught in the introductory class. Given these concerns, I felt that students could benefit from more time applying concepts in class; however, it was difficult to try to find time for more active learning activities when so much time was needed to introduce and teach these concepts in class. Thus, I decided that a new approach was needed to shift the emphasis from transferring knowledge to application of statistical concepts.

Methods: To address these concerns a Team based learning (TBL) approach was used for the summer semesters of 2014-2016. TBL is a learner-centered approach that enhances active learning and critical thinking. TBL shifts the instructional focus from knowledge acquisition to knowledge application. Students are placed in teams at the beginning of the semester to facilitate learning the course material. Prior to each class, students were assigned readings from BUSPH's online modules. To ensure that students did the readings I started each class with a readiness assurance process where students were quizzed on content from the online module. The remaining class time was used to apply concepts with active based-learning activities.

Results: On average students performed 3.1% higher on their midterm (pvalue =.0085), 7.2% higher on their final exam (pvalue=.0001) and 3.7% higher on their group project (pvalue=.0047) after adjusting for sex and degree program during TBL semesters compared to lecture based format semesters.

AN INTERPROFESSIONAL, MULTI-FACETED, CARE-BASED CLINICAL GENETICS CURRICULUM FOR THE PEDIATRICS CLERKSHIP

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Background: Advances in genomic medicine have contributed to increased demand for clinical genetic services. However, the pipeline for genetics providers has not kept up with demand. Medical school curricula expose trainees to genetics during pre-clinical studies but less so during clinical training, potentially limiting the ability to recruit physicians into this specialty. In this educational case study, we describe a strategy to introduce clinical genetics into a required pediatrics clerkship, thus exposing third-year medical students to the practice of clinical genetics.

Methods: Prior to class, students review core content regarding modes of inheritance and familiarize themselves with on-line clinical genetic resources via a mock genetics case. In class, students are divided into 4 groups, each facilitated by a genetic counseling student. The cases are presented in two sets, with each set sharing the same diagnosis in a different clinical scenario, to allow comparison of presentation, genetic testing and management strategies, and psycho-social issues. Each group presents their analysis to the entire class. Upon completion, students are invited to fill out an anonymous survey.

Results: In the 2017-2018 academic year, the interdisciplinary case sessions have been piloted on four occasions and surveys distributed to three of four sessions. Survey responses were collected from 16 of 69 students (23%). Students reported no previous exposure to seeing patients with genetics professionals, indicated a preference for learning in case discussion format rather than traditional lecture, and felt the format helped them learn the application of clinical skills and reasoning. Medical students appreciated the opportunity to interact with other health profession students in an interdisciplinary setting and desire further interactions regarding delivering complex news.

Conclusions: This session design has expanded the scope of exposure to clinical genetics content and genetics professionals, serving as an important foundation for further development of genetic knowledge during clinical training.

IMPLEMENTATION OF A RESILIENCY PROGRAM FOR 3RD YEAR MEDICAL STUDENTS

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In the 2017-2018 academic year, a pilot resiliency curriculum was implemented for third year medical students at Boston University School of Medicine. The goal of this curriculum was to aid students in developing a toolbox of skills to prevent and address present and future burnout.

The curriculum consisted of 8 hours of discussion over the academic year with one hour in each core clerkship. The topics differed based upon the clerkship--in psychiatry, students discussed the impact of countertransference on clinical practice while in surgery students discussed patient codes. Impact and satisfaction of each session was measured through both standardized E*value forms and Google forms sent to students following sessions.

The curriculum received mixed reviews and student experience was related to student dynamics within each group. Some sessions stood out as very useful, with one student commenting "Great conversation. This prompted some really interesting stories and thoughts from a bunch of different people in our class... people who didn't speak still had a valuable experience just by listening and reflecting." Another student commented "I don't think students feel comfortable in the resiliency curriculum sessions being forced to sit through the session or participate in the session." These comments are representative of all evaluations. On a 5 point Likert scale, the average response to "This session was meaningful" was 3.8 and to "This session was relevant" was 4.4.

This pilot curriculum offered a strong foundation for further curriculum development. Based upon student responses, the setting of discussions was highly associated with satisfaction. Therefore, in the future we hope to see this curriculum evolve into smaller, consistent groups of 6-8 students. From other school's experiences, this seems to be the most effective as it improves comfort and familiarity while allowing a deeper, continuous discussion over the year.

INTEGRATING ADVOCACY TRAINING INTO MEDICAL STUDENT AND RESIDENT EDUCATION

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Problem: In a politically divisive landscape, physicians hold an increasingly influential role in advocating for their patients, both at the patient-provider level and at the legislative level. Despite the recognized importance of advocacy in medicine, there are few established training programs in medical schools and residencies. At Boston Medical Center, a safety net hospital and academic training center, we are uniquely positioned to use innovative approaches to improve advocacy training and practice.

Approach: To address the need for formal advocacy training, we designed and implemented an interdisciplinary advocacy training program, the Socially Responsible Surgery Advocacy Project. The goal of this project is to train, promote, and further educate our current and future healthcare providers in how to practice advocacy both in delivering patient-centered care to vulnerable populations and in involvement in legislation to benefit our communities. In designing our program, we sought input from students, trainees and experts in the field of advocacy training. We identified several areas of need including a lack of formal advocacy training, lack of confidence in how to approach advocacy, lack of time and unfamiliarity with the legislative process. Our strategy for health advocacy training consists of four key areas. The first is the program's monthly workshops, "the advocacy roundtable," which introduces students, residents and community members to knowledge of current community needs, introduces them to relevant legislative initiatives, and trains them in basic skills for doing advocacy work. Each of these sessions offers opportunities to actively engage in a current political advocacy initiative. Second, to ease the barriers to involvement, we created a monthly advocacy newsletter and calendar to make it easier to find events in the community. Third, we host lunch talks addressing issues such as housing insecurity, gun violence and many other issues to educate providers on the issues impacting our communities. Lastly, we select one or two advocacy issues each year to address and to give students and trainees the opportunity to use these skills and to become activists outside of the hospital.

Outcomes: Our objective was to increase health care providers' competence in advocacy. The introduction of the monthly roundtable discussions and lunch talks has attracted hundreds of participants. Many of those who attended these sessions joined us for this year's advocacy initiative; the "March for Our Lives." Participants have found these sessions informative and note that taking those first steps into advocacy has increased their confidence and lowered the barrier for their continued participation in advocacy. We have found that implementing an advocacy training program is feasible in the surgical training setting and can be implemented easily within other medical school or residency training programs.

Future Directions: Our next step includes developing more rigorous methods of evaluating the impact of these interventions on provider attitudes, confidence and engagement in practicing advocacy.

INTRODUCING A NEW CLINICAL ROTATION IN GERIATRIC DENTAL MEDICINE

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Henry M. Goldman School of Dental Medicine

Objective: The goal of a new mandatory Geriatric Dental Medicine clinical rotation for third year dental students (DMD III) at the Henry M. Goldman School of Dental Medicine (GSDM) is to provide students with the opportunity to evaluate and treat older adult patients unable to access oral health care in a conventional outpatient dental treatment center. The students observe delivery of oral health care that is tailored to the patients' living environment, cognitive ability, overall health status, and physical impediments to maintaining oral hygiene while experiencing first-hand the importance of working with an inter-professional healthcare team.

Background: Oral diseases, including tooth decay, gum disease, and oral cancer may cause pain, functional limitations, and decreased quality of life. Two 2-hour didactic sessions in the Geriatrics and Gerontology course have been a requirement for all students for many years. The addition of a new mandatory clinical rotation consisting of a half day spent either in a long term care (LTC) facility or in the GSDM/Boston Medical Center (BMC) Geriatric Home Care Program was introduced in March 2018. Students are considered qualified for the clinical rotation after the successful completion of the course's didactic sessions and final exam.

Results: Of the 22 students to date who have completed the clinical rotation, 12 have submitted the required clinical rotation project. These projects have revealed students' increased awareness of the barriers to conventional dental care and greater sensitivity to patients' overall health needs. After a LTC clinical rotation, one student reflected that "Inter-professional collaborative practice is a valuable concept necessary in dentistry in order to treat patients at the highest level of care."

Future Directions: The students' attitudes, confidence, and skills regarding older adult patients will be collected and analyzed utilizing pre- and post-assessments beginning late 2018 or early 2019.

A BLOCK COURSE ON BIOMOLECULAR MODELING AND SIMULATIONS (BIOMS)

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Recent advances in computational modeling of biological macromolecules have found enormous application in fields as diverse as medicine, biotechnology, material sciences and genomics. Computational studies of biological macromolecules require multi-scale modeling skills in classical molecular mechanics, computational and quantum biology and molecular biophysics. During my stay at the Heidelberg University Germany, I have designed and taught a block course on Bio-molecular Modeling and Simulation (BioMS). The course provides hands-on training of several simulation techniques such as energy minimization, molecular dynamics simulations, and methods for the search of conformational transitions in complex biological macromolecules. The course is a 40 hours (one week) block course consisting of one-hour lecture on the theoretical background, and seven hours practical work. Software required for execution of the course is already available at Boston University School of Medicine. One course can have maximum 8 to 10 students with background in biology, chemistry, biochemistry, molecular biophysics or computational science. Learning outcomes include key concepts in bio-molecular simulations, use of Linux operating system, basics in supercomputing technology, visualization of biological macromolecules, energy minimization of protein structures, molecular dynamics simulations, normal mode analysis and conformational transitions using conjugate peak refinement methods. I have several years experience of successfully teaching this method.

TEACHING FOR MASTERY IN THE MPH CORE CURRICULUM

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Purpose: To document student behaviors and achievement using a mastery learning modification.

Background: The masters degree in public health requires students to complete a series of core courses teaching fundamental concepts and skills considered to be essential for all MPH graduates. Over many years, final exam scores in the introductory epidemiology core course suggested incomplete mastery, despite achievement of the minimum passing grade. A key element of the course was 11 graded problem sets that students were required to submit as a Blackboard test. In the past students had one opportunity to submit problem sets, and they were scored automatically.

Intervention: In order to promote mastery and more lasting learning, large pools of problems and questions were created for each problem set. Whenever a student opened a problem set, 10 problems were drawn randomly from the appropriate question pool. Students were permitted to repeat all problem sets an unlimited number of times throughout the semester, and each time they opened a problem set, 10 questions were drawn randomly from the appropriate pool. For most problems and questions, feedback in the form of solutions and explanations was provided immediately after submission. Students were required to work independently, but they were permitted to use notes, books, learning modules, and other resources. In the fall semester of 2015 (N=51 students) the Blackboard grade book recorded the score achieved on the most recent submission; in spring 2016 (N=38 students) the highest score achieved on each problem set was recorded. However, since Blackboard enables instructors to download data on *all attempts* for online tests, it was possible to create a database with all submissions of problem sets, including date and time of the submission and score. This enabled documentation of student behaviors over the course of each semester.

Results: The range of attempts for the 11 problem sets was 1 to >25 with a median of 4-5 attempts per student. Scores tended to improve with repeated attempts, and students generally repeated a problem set until they had achieved a score of 90 or 100% (see Figure 1 below). Student behaviors were nearly identical during both semesters. The correlation coefficient between students' mean grade book recorded score and their final exam score was 0.42 in fall 2015 and 0.45 in spring 2016.

Conclusions: Students were universally enthusiastic about this new "mastery learning" format. This preliminary study does not permit conclusions about whether the degree or duration of learning was increased, but there was clear evidence that students were motivated to work harder and repeat the assessments until a high score was achieved.

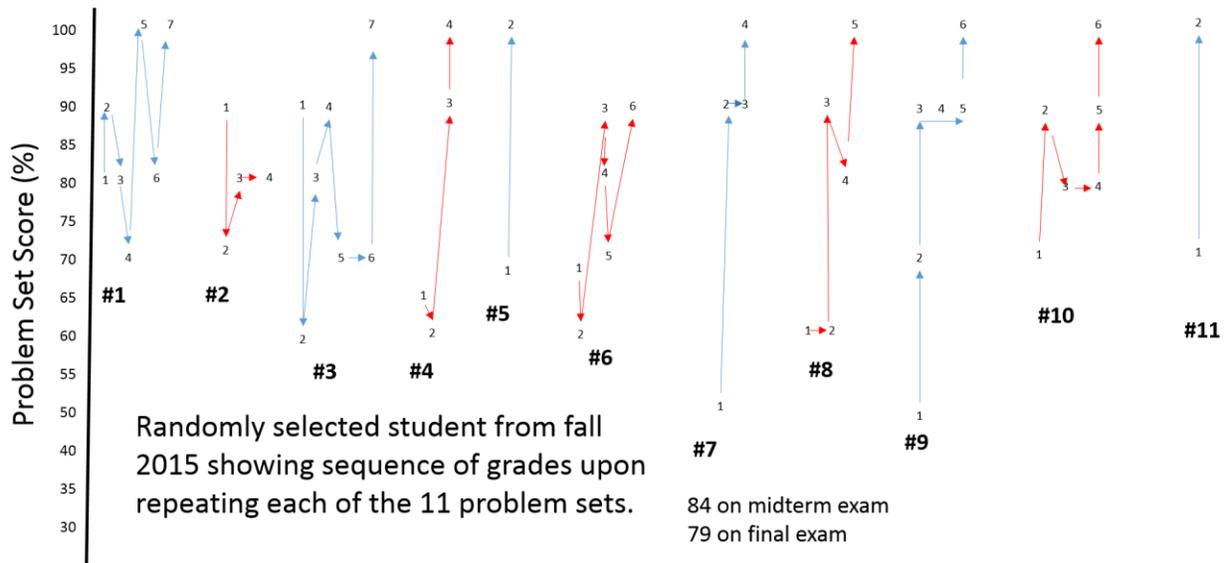


Figure 1 – Sequence of problem set scores for a randomly selected student who submitted each of the 11 problem sets multiple times. (Alternating colors are used just to enable the quizzes to be distinguished.)

THE EFFECTS OF VERTICAL MENTORSHIP ON CLINIC TRANSITION

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Abstract: Inadequacies in experiential learning in dental education are evident when pre-doctoral students transition from pre-clinical students to practitioners. Despite didactic and pre-clinical training, students are often anxious about and struggle with the transition into clinic. Students report feeling overwhelmed, anxious and unprepared when attempting to perform under the pressures and demands of the new clinical working environment. The Group Practice Model at Boston University Henry M. Goldman School of Dental Medicine (BUGSDM) promotes faculty to student mentorship, but lacks a peer mentoring component. Peer-based learning increases student's confidence, independence and overall skill development. For this study, peer mentorship was integrated into the Group Practice Model by developing a Vertical Mentorship Program (VMP) which assigned a senior student to a rising third year student five months prior to entering clinic. The Vertical Mentorship Program was then assessed through a series of surveys. Of the 110 DMD rising third year students at BUGSDM, 69 (62.72%) students completed the initial survey. Of the 13 students who were part of the VMP, 9 (69.23%) participated. The results indicated that the peer-mentoring activities of the VMP improved student's stress level prior to entering clinic. Students involved with the VMP reported feeling more confident in their level of preparedness during initial appointments compared to the students who did not have the resources of the VMP. Given that VMP pilot positively impacted all aspects of clinic transition, it is recommended that the resources currently allocated to the passive learning be diverted to expanding the active learning activities of VMP within all of the groups practices at BUGSDM and that other dental schools adopt a similar program.

Introduction: Technologic advancements in combination with a greater prevalence of individuals seeking higher education catalyzed the need for research comparing effective educational methodologies for adults. Over time differences between child and adult learners were identified and higher education shifted to andragogy, the art of helping adults learn. Andragogical principles suggest that adult learners move from dependency to self-directedness when educational models incorporate empirical activities that promote student-based, experiential learning. Despite supporting evidence indicating the benefits of techniques such as active, student-centered learning, the predominant teaching methodologies implemented in the dental education are teacher-centered and lecture-based approaches. To a certain extent, students are expected to passively develop critical thinking skills as well as clinical skills through textbooks and classroom discussions.

Inadequacies in experiential learning in dental education are evident when pre-doctoral students transition from pre-clinical students to practitioners. Despite didactic and pre-clinical training, students are often anxious about and struggle with the transition into clinic. Students report feeling overwhelmed, anxious and unprepared when attempting to perform under the pressures and demands of the new clinical working environment.

The Group Practice Model at Boston University Henry M. Goldman School of Dental Medicine (BUGSDM) promotes faculty to student mentorship, but lacks a peer mentoring component. Peer-based learning increases student's confidence, independence and overall skill development. Furthermore, peer-mentoring activities have been shown to aid students in career preparation as well as improving comfort level, both of which are key components to alleviating initial stresses and pressures associated with student's initial appointments.

Current transitional resources available to students include the BUGSDM clinic orientation, designated clinic assisting requirements as well as an ADEA Intro to Clinic Event. For this study, peer mentorship was integrated into the Group Practice Model by developing a Vertical Mentorship Program (VMP). Five months prior to entering clinic, the VMP assigned a senior student to a rising third year student. During the five-month period prior to entering clinic, the rising third year student was encouraged to voluntarily assist the senior student in the clinical setting. The objective of the VMP was to provide pre-clinical students with active learning opportunities to familiarize themselves with clinic protocols as well as observe student to patient interactions; in hopes to have the rising third year students feeling comfortable during their initial appointments in clinic.

Aim: The aim of this pilot study was to evaluate student stress levels prior to entering clinic, create peer-guided activities through the VMP to establish a level of comfort for the rising third years in their future learning environment, and to evaluate the effect of the VMP on student's preparedness and stress levels

Methods and Materials: After completion of the five-month VMP and both school led and student led clinic orientations occurred, the involved students completed an initial questionnaire. The questionnaire assessed the VMP's effect on the students' experience transitioning to clinic. The same questionnaire was provided to students who did not complete the VMP. A final survey was given to all students three months after transitioning into the clinical setting. Paper surveys were conducted during designated class periods. Data was then entered directly into Qualtrics which enabled descriptive statistic calculations. The results of the two groups were compared to see if there were differences in student's transitional experience, comfort level, and clinical performances due to the VMP's peer-guided learning opportunities.

Results: Of the 110 DMD rising third year students at BUGSDM, 69 (62.72%) students completed the initial survey. Of the 13 students who were part of the VMP, 9 (69.23%) participated. Prior to entering clinic, 53.57% of Non-Group Practice 9 Members reported feeling moderately or extremely stressed in regards to entering clinic while 22.22% of Group Practice 9 members reported feeling moderately or extremely stressed.

Of the Non-Group Practice 9 students, after three months of clinical experience, 4.55% of students reported feeling moderately prepared to extremely prepared to perform an initial appointment such as a data collection appointment. Of the Group Practice 9 students, 55.55% reported feeling moderately to extremely prepared to perform an initial appointment such as a data collection appointment.

After transitioning into clinic 88.88% of Group Practice 9 students rated the VMP as moderately to extremely helpful in their transition into clinic.

Of the Group Practice 9 students 66.67% indicated that the single most helpful resource to transitioning into clinic was the VMP. In addition, 72.50% of those students reported that VMP was moderately to extremely helpful in terms of their level of preparedness while performing their initial appointment, a data collection appointment. Of the students who reported that they did not use the VMP to the fullest, 100% of those students indicated that in hindsight they would have utilized the VMP more prior to entering clinic.

Conclusions: The results of this pilot study indicated that despite the didactic and preclinical preparation, supplemented by a faculty led orientation session to prepare students for entering

the clinic, students still felt unprepared and stressed. Of the total number of participants in the final survey only 16.00% of student's reported that current resources offered to students are adequate in properly preparing students to enter clinic. Similarly, 87.67% of student's reported that additional resources and information are needed to make students feel more confident to enter clinic.

The peer-mentoring activities of the VMP improved student's stress level prior to entering clinic. Students involved with the VMP reported feeling more confident in their level of preparedness during initial appointments compared to the students who did not have the resources of the VMP. After three months of clinical experience, 88.89% of Group Practice 9 reported that resources promoting active learning via assisting were the most helpful to their transition while 11.11% of Group Practice 9 members rated passive classroom activities as the most helpful resource. Even though there was not a VMP within other group practices, a similar pattern was seen with 63.13% and 36.84% of students favoring active and passive learning, respectively. Given that VMP pilot positively impacted all aspects of clinic transition, it is recommended that the resources currently allocated to the passive learning be diverted to expanding the active learning activities of VMP within all of the groups practices at BUGSDM and that other dental schools adopt a similar program.

BRIDGING THE GAP BETWEEN THE CLASSROOM AND PRACTICE: ESTABLISHING A MULTI-USE BUSPH PUBLIC HEALTH TEACHING CASE REPOSITORY

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Patricia Elliott, DrPH, Department of Community Health Sciences, BUSPH
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Case-based teaching is a pedagogical approach that engages students in the decision-making process through analysis of authentic workplace and organizational situations. It also helps the instructor gauge the ability of students to synthesize, evaluate, and apply course concepts. This project that was recently selected as a BUSPH education innovation award involves 3 aims: (1) to increase BUSPH's footprint in the area of educational scholarship by collaborating with community partners to establish a repository of multi-use public health-focused teaching case documents for academic and organizational use, (2) to strengthen BUSPH's efforts to reform public health education and challenge students and professionals to apply principles and concepts to problem-solve real world challenges, and (3) to actively translate knowledge and expertise into good public health practice via a learning and dissemination event held to demonstrate cases to faculty, organization members, and others in the BU community. We will hire and train three master's or doctoral-level students who will collaborate with a community partner (chosen by the investigators) to develop and draft a teaching case, teaching note, and other exhibits. The repository of initial cases will include topics that can be covered in a range of certificates such as maternal child health, health policy and law, global health, infectious disease, health care management, mental health, and sex, sexuality and gender. The three cases developed through this grant will be used to illustrate the complex dimensions involved in real world decision making that cannot be simulated or recreated in the classroom in any other manner. Cases will also add value for organizations, as they can be utilized as tools deployed during the hiring process through case-based interviewing or recruitment, as well as professional development, or inter-organizational training.

GERIATRICS 5MS FOR RESIDENTS: A NEEDS ASSESSMENT AND PILOT WORKSHOP

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Background: Geriatricians are called on to teach “little ‘g’ geriatric” providers, but there is lack consensus for best practices for this education. The Geriatrics 5Ms, introduced by Drs. Tinetti, Molnar, and Huang in 2017, provide a novel framework for caring for older adults that directly maps to the current ACGME core competencies in Geriatrics for all internal and family medicine residents, making it an exciting tool for framing geriatrics education. Using the 5Ms framework, we conducted a needs assessment and pilot workshop for internal medicine residents from three different teaching hospitals (Boston Medical Center, Beth Israel Deaconess Medical Center, and Brigham and Women’s Medical Center) who provide primary care for the aging Veteran population at VA Boston.

Methods: Our intervention was modeled on Kern’s Six-Step Approach to Curriculum Development. We held stakeholder interviews with residents and physicians to ascertain geriatric primary care needs. A targeted needs assessment was administered to residents in primary care to evaluate self-efficacy and knowledge of geriatric concepts. These results guided creation of a Geriatric 5Ms half-day workshop that included four 30-minute modules on Mobility, Medications, Mind, Multimorbidity and Matters Most. Workshop implementation began in November 2017 with a pilot group of 15 residents, and included pre-workshop knowledge assessment and post-workshop program evaluation.

Results: Stakeholder interviews revealed that residents and attendings felt that more geriatric education is necessary in primary care. The Needs Assessment surveyed resident self-efficacy and knowledge of geriatric skills. Of the 17 residents surveyed, only four had strong self-efficacy ratings on Geriatric 5M topics. Common challenges identified by residents corresponded to the 5Ms, including managing multiple comorbidities, polypharmacy, and difficulty prioritizing. These results were used to guide creation of a Geriatrics 5Ms workshop. Pilot workshop evaluations indicated that learners appreciated point-of-care tools for primary care, especially those related to prognosis and deprescribing, and planned to incorporate these tools into their clinical practice.

Conclusions: The Geriatrics 5Ms is a helpful framework to teach core Geriatric competencies for residents in primary care outlined by the ACGME. This needs assessment and pilot workshop applied the 5Ms framework in an innovative way. Further iterations and evaluation of the workshop will help hone this potential model for providing primary care geriatric education to residents.

DEVELOPING AND APPLYING SELF-REFLECTIVE TOOL (SRT)

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Introduction: Healthcare professionals can manage difficult encounters by being mindful. Self-reflection enables them listen to patients' needs in their struggles in a compassionate way. Self-reflection also helps them in their personal and professional development. Mindless acts can occur during stressful work environment. Reflection reframes the situation by intentionally analyzing it from all angles. The self-monitoring process by being aware in the here-and-now of new information and applying different perspectives is a trait of professionalism. "We do not learn from experience, we learn from reflecting on experience." John Dewey (1859-1952).

Aims: The aim is to develop and apply Self-Reflective Tool (SRT) designed to help healthcare professionals in reflection, a trait of professionalism. Adapted from Yeganeh and Kolb 2009, the tool consists of merging the socio-cognitive stream of mindfulness with the Kolb Experiential Learning. **Methods and Evaluation Plan:** An article about Mindful Experiential Learning (Yeganeh, Kolb 2009) is provided prior to attending a workshop to acquaint attendees with the materials to be covered and develop the SRT followed by a practical demonstration. An anonymous study is an option to engage in and data will be used in an aggregate manner. IRB approval is obtained, a pre-survey is completed prior to reading the article and a post-survey is administered immediately after the workshop to assess the immediate efficacy of the training, then at six weeks later to identify the long-term effects of the training. Group discussion protocol is administered at the completion of the workshop to explore the redevelopment of the training. Data will be analyzed using ANOVA to show if at least two of the means are significantly different followed by post-hoc test Tukey or Bonferroni to show which means are different. Qualitative data from the protocol is coded to identify themes and then analyzed. **Conclusions:** Learning in the mindful experiential learning model takes place through a process whereby learners undergo experience, engage in reflection on that experience, develop theory on the basis of reflection, then formulate strategies for new behaviors, which become the basis for further experience. Thus, the cycle begins again (Nod Miller, Handbook of Adult & Continuing Education). Developing the practice of self-reflection creates a habit and an opportunity to utilize SRT in other situations and contexts.

DEVELOPMENT OF A CURRICULUM TO COMBAT BURNOUT IN MEDICAL STUDENTS

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Burnout and depression are pervasive through all stages of medical training, and these concerns often first become evident during the third year of medical school. The American Medical Association (AMA) and the Liaison Committee on Medical Education (LCME) recognize the significant impact of a lack of resiliency and wellness upon medical student performance and future career satisfaction, and both organizations have developed modules and standards to guide the development of focused resilience and wellness curriculum within medical schools. However, despite these directives, few medical schools have published literature regarding implementation of curriculum addressing resilience or burnout. In response to this, we developed a unique curriculum to implement within Boston University School of Medicine's third year. Our curriculum was designed with three aims: 1) increase community between peers and faculty; 2) create a forum for open discussion of issues faced by third year medical students; and 3) help students develop a toolbox of skills to prevent and address present and future burnout. We first conducted a needs assessment for such a curriculum through student questionnaires. We then surveyed clerkship directors to evaluate the biggest difficulties students face in their clinical clerkships. Two clerkships (Family Medicine and Ob/Gyn) already had established sessions and these were incorporated into the curriculum. The following topics were developed for each of the remaining core clerkships: Patient Codes and Dark Humor (Surgery); Hidden Curriculum (Medicine); Moral Distress and Ethical Dilemmas (Emergency Medicine/Radiology); Narrative Medicine (Pediatrics); and Countertransference (Psychiatry). Each session held a similar structure with the facilitator first sharing a personal experience and then offering a few questions to begin discussion. In some sessions, a short optional reading was assigned beforehand. The success of each session was evaluated through student questionnaires, and changes were implemented throughout the year to address student concerns.

GERI FRIENDS: A MEDICAL STUDENT RUN PILOT PROGRAM TO PROVIDE SOCIAL SUPPORT FOR HOSPITALIZED OLDER PATIENTS

Rachel Rivero, Jaime Rosenthal, Arthur Fu, Megan Young

Background: At Boston University School of Medicine (BUSM) there are over 90 student run organizations and 28 services learning groups. The American Geriatrics Society Student chapter at BUSM and the Patch Adams Club (whose mission is to visit and perform magic tricks for hospitalized children) collaborated to start a service learning project called Geri Friends. Current research shows that early exposure to geriatric patients improves attitudes among medical students towards older adults. In the program Geri Friends, we seek to improve attitudes and decrease biases toward geriatric patients by promoting student interactions with hospitalized geriatric patients.

Methods: First and second year medical students at BUSM were assigned to visit hospitalized older adult patients. The students signed up for an afternoon of their choice ahead of time and then contacted the AGS student group leaders to find a patient. The AGS student leaders contacted the faculty advisor of the interest group who then contacted the inpatient attending to find suitable patients. During the visit, students could either converse, do crossword or Sudoku puzzles, or perform magic card tricks. Students were instructed to spend time with the patients socially and not to obtain a medical history.

Results: Geri Friends has expanded to include nine 1st and 2nd year medical students. It has been accepted as a service learning project under the student branch of American Geriatrics Society at BUSM. The medical students visited a total of 15 patients since the start of the program in July 2017. The average age of patients was 80 years, and admitting diagnoses included hip pain, dementia, heart failure, and GI disturbances.

Conclusions: We hope that medical schools can use this protocol to implement service learning projects similar to Geri Friends to expose medical students to geriatric patients during preclinical years. We also hope to encourage collaboration between student interest groups within a medical school. Going forward, our goal is to keep expanding and visiting more patients, while also assessing our program's impact on stress and social isolation among hospitalized elderly patients and assess the impact on student attitudes towards geriatric patients.

PERSISTENT BURNOUT AND MINDFULNESS DURING PEDIATRIC INTERNSHIP

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Background: Burnout negatively affects physician well-being and is common during residency training.

Objectives: To determine the prevalence of burnout at the beginning, middle and end of pediatric internship, and to assess factors associated with burnout.

Methods: We conducted a longitudinal cohort study of burnout and mindfulness during the first year in which a large pediatric residency program implemented a novel 6-month mindfulness curriculum for interns. We invited all interns to complete the Maslach Burnout Inventory, Jefferson Empathy Scale, and Five-Facet Mindfulness Questionnaire at orientation, 6 months and 12 months. We conducted chi-square and *t*-tests, as well as multivariate logistic regressions.

Results: All eligible interns participated in the survey at baseline (n=50, 100% response), 42 at 6 months (84%), and 35 at 12 months (70%). Mean age was 28 years, and 30% were male. Of the 18 interns who were burned-out at baseline (36%), 9 were no longer burned-out after the curriculum ended 6 months later. Of the 33 interns who completed all three surveys (66%), 7 were burned-out at the beginning, middle and end of internship, while 7 were not burned-out at any point during the year.

At baseline, interns' mean mindfulness score was 124.4 (SD 15.0; range 95 to 153); males had significantly lower mindfulness scores (117) than females (128; p-value = 0.02). Interns not burned-out at baseline had significantly higher baseline mindfulness scores (128) than interns burned-out at baseline (118; p = 0.02). Similarly, interns who were not burned-out on any of the 3 surveys had significantly higher mindfulness scores (134.4) than those who were burned-out at least once during internship (121.2; p = 0.007). Controlling for age, gender, and baseline empathy, interns with higher baseline mindfulness had a significantly lower odds of starting internship burned-out (OR: -0.06; 95% CI: -0.12, -0.004).

Conclusion: Burnout is common during pediatric intern orientation, often persisting throughout internship. Mindfulness was independently associated with both burnout during intern orientation and persistent burnout during internship.

“SEXUAL HEALING”: AN EXTRACURRICULAR SEXUAL HEALTH CURRICULUM FOR PRE-CLINICAL MEDICAL STUDENTS

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Background: Existing sexual health curricula in North American medical schools may be inadequate because they differ in the range and depth of topics covered. These gaps in education can affect provider practices, resulting in decreased or uncomfortable discussions of sexual health with patients. This is especially true for LGBTQ patients, as one survey found that medical students, residents, and fellows were less comfortable taking sexual histories for LGBTQ populations compared to all patients. Clinical training, starting in medical school, should better prepare students for these discussions. At Boston University School of Medicine, second-year medical students sought to educate their peers and encourage informed and nonjudgmental sexual health counseling.

Methods: Eight seminars and workshops covering a wide range of topics were offered to preclinical medical and physician-assistant students. Sessions were led by patient self-advocates, clinicians, researchers, and sexuality educators. Longitudinal training on effective sexual history-taking with examples of open-minded questions was provided. Program evaluations were conducted to obtain qualitative and quantitative feedback on learning objectives, content, speakers, and level of engagement.

Results: 60 individuals (including first/second year medical students and physician assistant students) participated in this course. Students overall enjoyed and learned from this course, as more than 75% of students who completed program evaluations rated each category 5/5. The three hands-on classes--Spectrum of Sexual Practice, Contraception, and Abortion--received the highest scores.

Discussion: This sexual health enrichment opportunity provides students with a broader understanding of sexuality and sexual practices. Some topics from this educational initiative have been integrated into the core curriculum, and we hope that further integration will take place going forward. Likewise, we hope to share this course with other medical schools and further our research by comparing knowledge and attitudes of students who took the course to those of students who did not.

EAT TO TREAT: A NUTRITION COURSE FOR FUTURE PHYSICIANS – AN INNOVATIVE ENRICHMENT OPPORTUNITY INTEGRATING NUTRITION EDUCATION, COOKING SKILLS, AND COUNSELING TECHNIQUES FOR MEDICAL STUDENTS

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Background: Nutrition education in US medical schools is lacking. While Boston University School of Medicine ranks in the top 10% of medical schools nationally for nutrition education hours, students continue to request further nutrition training, specifically in years 1 and 2. The “Eat to Treat” seminar aims to fill that gap.

Methods: A survey of second year medical students identified areas of interest and a six-lesson curriculum integrating nutrition education, culinary skills, and counseling techniques was developed. Five 2-hour sessions consisted of hands-on meal preparation, brief nutrition lessons, and group-based patient interaction simulations, all centered on a key nutrition topic and counseling skill. The sixth session was a disease-specific, cook-off style competition putting newly acquired knowledge and skills into action. Lessons were held in the Teaching Kitchen at BMC and food was provided by the BMC Preventive Food Pantry, BMC Rooftop Farm, or purchased using a \$10 fee from participants. Students completed a self-assessment survey during the first and last sessions and completed quizzes at each meeting to assess changes in knowledge.

Results: Attendance was capped at 15 students and all slots were filled. Attendance rates averaged 4.6 sessions out of 6 per student. Self-reported confidence in assessing a patient’s food intake, ability to prepare a healthy meal on a budget, and in setting achievable goals for health behaviors with patients improved over the span of the course. A second semester of the Eat to Treat program is currently underway and 11 first-year medical students are enrolled.

Conclusion: Supplemental nutrition education in medical school with a focus on practical skills such as cooking and counseling is feasible and can improve nutrition and culinary knowledge among medical students as well as bolster their confidence in interacting with and treating patients. This has the potential to positively impact care for large numbers of future patients.

INTRODUCING GRADUATE STUDENTS TO ANATOMY RESEARCH THROUGH A JOURNAL CLUB: A PILOT EXPERIENCE

Alexandra E. Wink, Ann C. Zumwalt: Department of Anatomy and Neurobiology, Boston University School of Medicine

Questions frequently posed to students pursuing research-based graduate degrees in anatomy are: “Don’t we know all the anatomy? What is there to research?” The purpose of this journal club was to introduce graduate students, who are primarily engaged in neuroscience research, to 1) the research questions that anatomists are equipped to answer, and 2) the methods used to answer those questions. The journal club, titled “Research Methods in Human Anatomy,” was designed and facilitated by a doctoral candidate (AW) mentored by an Associate Professor (AZ) in the Department of Anatomy and Neurobiology at BUSM. The course spanned six weeks in Spring Semester 2017, with each week covering a different topic in anatomical research: Week 1 - Introduction to Anatomical Research; Weeks 2 and 3 - Studies of Anatomical Variation; Week 4 - Functional Anatomy and Biomechanics; Week 5 - Embryology and Developmental Anatomy; and Week 6 - Anatomy Education Research. Between 2 and 5 recent papers published in anatomy journals were assigned each week to the students, who took turns leading discussions primarily focused on the scientific methods of each paper. Following the completion of the journal club, students (n = 7) were given an optional, anonymous survey to provide feedback. Students had a positive overall opinion of the journal club (4.3 on a 5-point scale) and commented positively on the course organization. Students generally favored the Anatomy Education Research session, while the majority (4/7) selected Embryology and Developmental Anatomy as their least favorite topic, citing personal interest (“not a favorite topic of mine”). In the future, this journal club could be expanded into a semester-long methods course that examines anatomical research in more depth.

INTERNSHIP TO HELP THE CAREER TRANSITION FROM RESEARCH PHD TO EDUCATOR

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Purpose: Our purpose is to facilitate the career development of Biomedical research PhD trainees that are interested in education. Biomedical research PhDs are highly specialized professionals, and their career transition to jobs outside research laboratories is not easy. In the past, little or no training was provided during their training to facilitate this transition. However, recently, an increased awareness of this problem has facilitated the launching of different initiatives to expose them to opportunities that prepare them for their chosen career path. Here, we present an initiative to facilitate their transition to become educators.

Innovation and Methods: In 2017 we piloted an interdisciplinary training program for PhDs that offers these PhDs exposure to hard education skills in a medical school environment. This program was advertised through the BEST program at BU as an internship. During this internship, trainees receive dual training in:

- 1) educator training on best practices in teaching biomedical sciences
- 2) clinical shadowing experiences to increase their exposure to the relevance and practical application of basic science content.

In addition, the trainees benefit from the career advice of all the faculty participating in the program.

Results: We will present data on the trainees that participated in the program, the activities to assess their educational skills before and after the program, and their changes in knowledge about particular education concepts derived from the program. Surveys indicate that participating in the program was a positive experience as it offered unique learning opportunities and did not affect their laboratory responsibilities.

Discussion/Conclusion: The PhD trainee participants were enthusiastic and motivated by an interest in teaching. Our pilot program provided these trainees with hard educational skills that increased their knowledge about teaching concepts and tools and their application. The resources available at BUSM enabled the development of this training program.

BRIDGING THE FOUNDATIONAL-CLINICAL SCIENCE DIVIDE: RESULTS OF A PILOT MEDICAL EDUCATOR TRAINING PROGRAM FOR PH.DS

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Despite growing emphasis nationwide on the integration of the foundational (basic) and clinical sciences in undergraduate medical curricula, these efforts remain a challenge. One notable barrier to integration may be educators themselves. While basic science and clinical educators are experts in their respective fields, typically neither group has been trained in the perspectives, motivating values, or knowledge sets of the other.

Innovation: In 2016-17 we piloted an interdisciplinary training program to train Ph.D. biomedical scientist trainees in best practices in teaching and in the clinical relevance of their science. The trainees shadowed clinicians to expose them to: 1) the clinical relevance and application of their area of scientific expertise and 2) the pace, setting, and practical focus of clinical teaching.

Methods: The trainees were two Ph.D. postdoctoral fellows in BUSM basic science departments. They were paired with clinician mentors whom they shadowed for 10 hours/month for approximately 3 months. The trainees also participated in a semester-long didactic course on best practices in teaching. The following attributes of the program were assessed: trainees' motivations for participating and the strengths and weaknesses of the program from the perspectives of the trainees and the program directors.

Outcomes: All participants agreed that the program addresses an important need in medical education and in basic scientist medical educator training. Major strengths of the program include the opportunity for the trainees to observe the implementation of basic sciences in the clinic, ease of pairing foundational and clinical science specialties, and the flexibility of program scheduling. Future iterations of the program will ensure that the trainees have opportunities to teach and will more intentionally direct the trainees to the intended lessons of the program, i.e., that that clinical teaching requires lessons to be short, clinically relevant, and quickly accessible to learners with a variety of backgrounds.

SUGGESTED READINGS

Amy Lee. 2017. *Teaching Interculturally: A Framework for Integrating Disciplinary Knowledge and Intercultural Development*. Sterling VA: Stylus. Great ideas for how to engage students in ways that encourage and use their diversity as a part of the learning process, and how to assess student knowledge and skills in ways that acknowledge and honor diversity. Includes first-person case studies from several professors.

Ruth Colvin Clark. 2015. *Evidence-based Training Methods: A Guide for Training Professionals. 2nd Edition*. Alexandria VA: ATD Press. This book was recommended at one of the GMS Teaching Collaborative sessions last year. It summarizes education research findings for a practitioner audience. Each chapter starts with a test of your knowledge of the science of teaching, i.e. Do interesting visuals promote better learning? When teaching two topics, is it better to group practice questions by topic or to mix the questions for both topics in the same session? Then the author presents the evidence and provides guidance for applying the science to your own teaching and training. Very readable.

Tony Wagner and Ted Dintersmith. 2015. *Most Likely to Succeed: Preparing Our Kids for the Innovation Era*. New York, NY: Scribner. A big-picture critical analysis of what's wrong with our educational system, and how it needs to change to prepare students to succeed in our evolving world. The authors show the disconnects between what we teach and what skills and characteristics students will need in the workforce, weaving in several "millennial interviews" to illustrate. While not focused on graduate training, it is helpful to understand how our students are being shaped by experiences in K-12 and college, and to think of how we can help foster a new vision for education.

Wiseman, Liz. 2010 Are You a Multiplier or Diminisher? From *Multipliers: How the Best Leaders Make Everyone Smarter* "Reprinted by permission of Leadership Excellence. For more information about Leadership Excellence products and services please visit www.leaderexcel.com."