BOSTON UNIVERSITY

BUMC

12th McCahan Education Day

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

Wednesday, May 31, 2017

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.
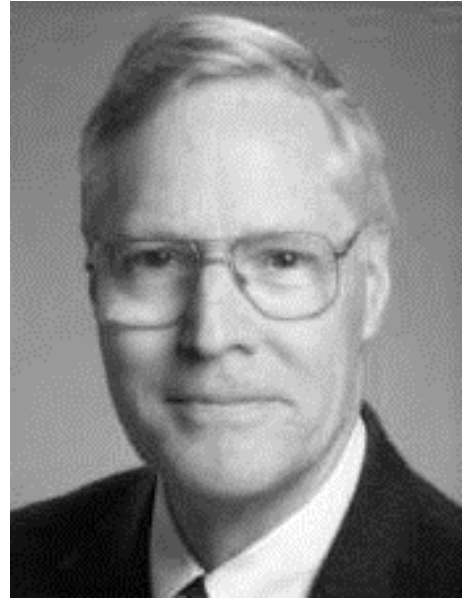
Following his recruitment to Boston University in 1975 as Associate Professor of Medicine, Dr. McCahan continued clinical practice with underserved populations through the Home Medical Service (now the Geriatrics Home Service). He regularly preceptored fourth-year students on home visits to frail elders. 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.

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

May 11, 2017

Welcome to
**The Twelfth Annual John McCahan
Medical Campus Education Day**

Dear Colleagues,

Welcome to the twelfth 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, Dr. Mary Deane Sorcinelli, former Associate Provost for Faculty Development and Professor of Educational Policy at UMass Amherst, is a well-known researcher in the areas of professional development of faculty, mentoring, scholarly writing, and improvement of teaching and learning in higher education. She holds an M.A. in English Literature from Mount Holyoke College and an Ed.D. in Educational Policy from the University of Massachusetts Amherst. She is currently Co-Principal Investigator of a grant from the National Science Foundation to the Association of American Universities to study how universities can successfully coordinate multiple undergraduate STEM education reforms to achieve sustainable change. Additionally, she is the Senior Fellow of the Institute for Teaching Excellence and Faculty Development at UMass Amherst. She previously served as President/Executive Board Member of the Professional and Organizational Development Network, and as Senior Scholar to the American Association for Higher Education.

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,

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

ACKNOWLEDGMENTS

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
BUMC IT, Educational Media

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

Blackboard Transact	Kaltura
Bones Clones	Lippincott/Wolters Kluwer
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ExamSoft	PHX Public Health Exchange

Twelfth Annual
John McCahan Medical Campus Education Day

May 31, 2017
Hiebert Lounge

2017 THEME
Fostering a Culture of Teaching and Learning

SCHEDULE OF EVENTS

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

8:45-8:50 a.m. **Welcome**
Karen Antman, M.D.
Provost, BU Medical Campus

9:00-10:10 a.m. **Keynote Lecture:** Fostering a Culture of Teaching & Learning

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

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

10:30-12:00 p.m. **Workshops**
Workshop A– Goals-Based Communication Training In Healthcare Education – Room L 203
Workshop B – The Myth Of The Reluctant Learner: Professional Development Discussion Cases For Educators Room – L 206
Workshop C – Taming Competencies, Milestones And EPAs: Applying A Novel E-Tool For Developing Measurable Objectives – Room R 107
Workshop D – Designing A Customized Flipped Classroom: Strategies & Software Solutions - Room L 1105

(See p.12 for descriptions and locations)

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

1:00 – 1:45 p.m. **Deans' Panel: *Fostering the Culture of Teaching, Learning, & Innovation***
Moderated by Matt Trevett-Smith, Ph.D., Director, BU Center for Teaching & Learning
Panelists:
Stephen Brady, PhD, Division of Graduate Medical Sciences
Chris Dellarocas, PhD, Office of Digital Learning & Innovation
Neal Fleisher, DMD, Henry M. Goldman School of Dental Medicine
Anna Hohler, MD, School of Medicine
Lisa Sullivan, PhD, School of Public Health
(See p. 18 for descriptions)

1:45-2:15 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
BUSM Office of Academic Affairs Voluntary Faculty Award of Excellence
BUSM Office of Academic Affairs Excellence in Service Award

(See page 19 for descriptions)

2:15- 3:45 p.m.	**Oral Presentations**

Best Student Abstract - Education Technology
Learning Moment: Features Of Asynchronous Webtools That Maximize Acceptance And Adoption By Medical Students

***Dea Biancarelli;** #**Andrew Chu**; Mari-Lynn Drainoni, PhD Jeffrey Schneider, MD, Alexander Sheng, MD.
  *School of Public Health, Class of 2018
  #School of Medicine, Class of 2018
  * # Authors contributed equally
  See abstract listing page 22

Best Faculty/Staff Abstract – Education Innovation & Research
Using Basic Research Papers To Facilitate Curriculum Integration

Louis Toth, Ph.D.
  See abstract listing page 55

Best Student Abstract – Education Innovation & Research
Optimizing Interdisciplinary Collaboration For Students: Evaluating Models Of Coordinated Care

Jacqueline Vuong*, Aneesh Patel*, Heather Miselis MD, MPH[1]
  * BU School of Medicine, Class of '20 authors contributed equally
  See abstract listing page 57

3:45-5:00 p.m.	**Poster session/Networking/Vendors**
5:00 p.m.	**Reception** – Room L-206

Educational Vendors will be showcasing their products in Hiebert Lounge after 9:00 a.m. throughout the day

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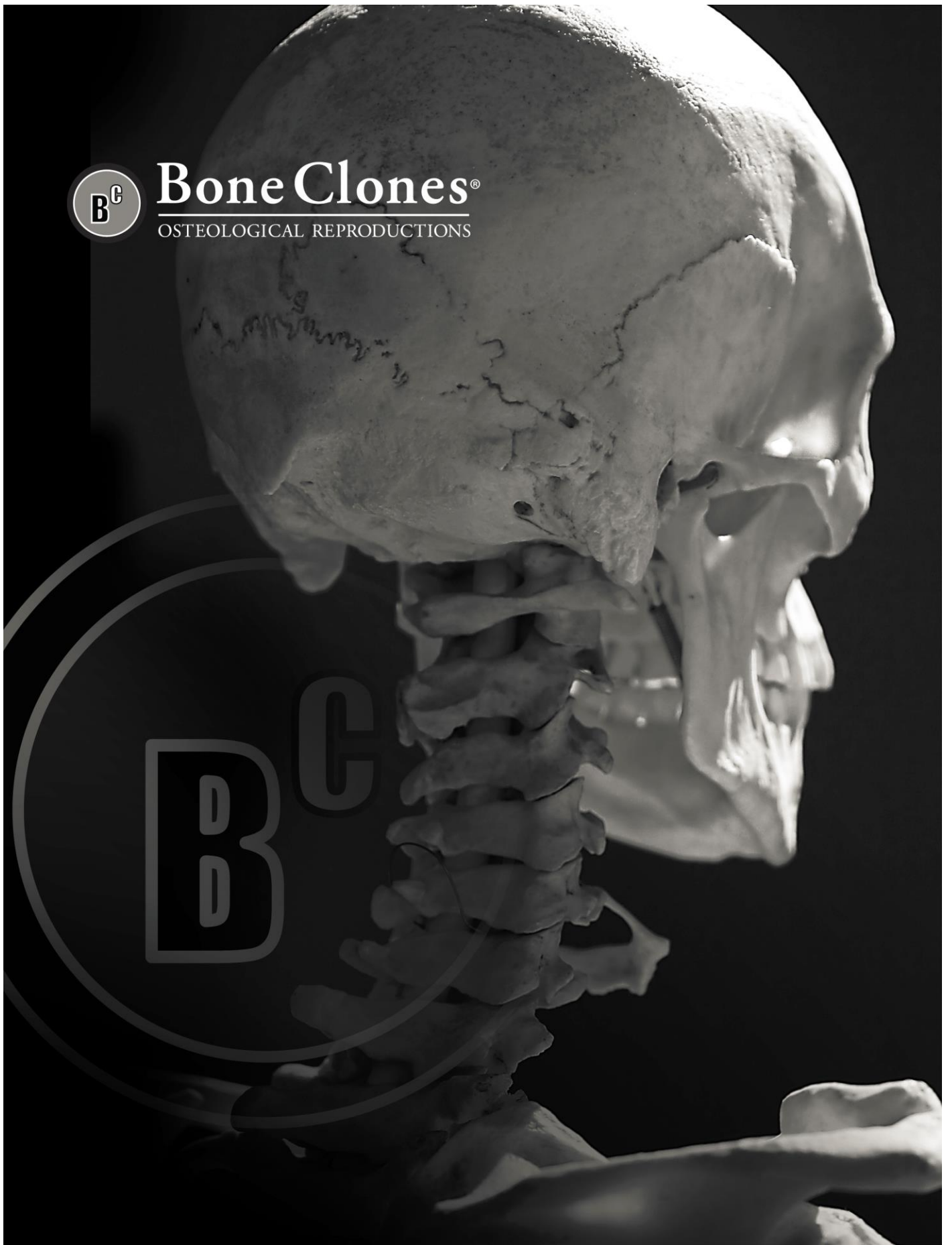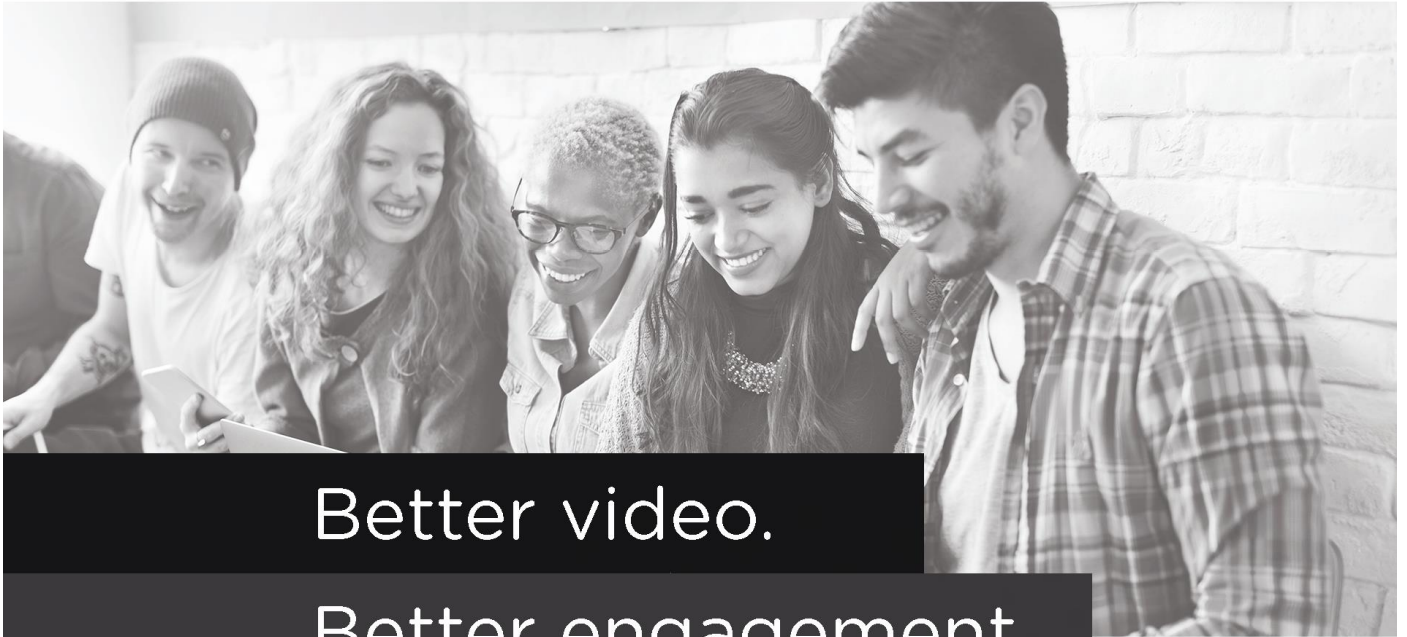
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WORKSHOP DESCRIPTIONS AND LOCATIONS

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

WORKSHOP A - Room L - 203

GOAL-BASED COMMUNICATION TRAINING IN HEALTHCARE EDUCATION

Michael Slesnick, DDS
Department of Dentistry, Henry M. Goldman School of Dental Medicine

The intent of this workshop is to discuss the communication training now incorporated into Boston University's Henry M. Goldman School of Dental Medicine's curriculum. It may be that a similar training might be of use to other health care educational programs.

The training is designed to teach well-defined communication goals and techniques with the intent of:

- Increasing patient compliance;
- Preventing or managing problems;
- Improving career satisfaction.

Target Audience: All faculty and staff interested in helping students achieve proficiency in communication and interpersonal skills in the clinical setting.

Rationale: Health care education has traditionally focused on didactic courses and development of clinical skills. Often, however, new graduates find that they lack the skills needed to connect with and understand their patients. As a result, they are unable to 1) successfully help patients understand their situations and treatment options, or 2) prevent or manage patients' emotional issues when problems arise. This training starts by stressing the critical nature of communication and then moves on to the essential communication goals needed for specific clinical situations. Once these goals are clear, techniques for achieving the goals are taught. Research to date has demonstrated that the training has been successful in increasing student confidence.

Learning Objectives: By the end of the session, participants should be able to:
1. Understand how students are being motivated to become good communicators;
2. Understand the communication goals that students are being taught;
3. Understand the techniques the students are learning to achieve these goals;
4. Understand the value of communication training in successfully presenting treatment plans and in preventing and managing clinical problems;
5. Understand how the workshop training transitions into the clinical experience;
6. Understand the importance of student self-assessment;
7. Understand the research currently being conducted to assess the training.

Outline:
- Overview of the training (30 minutes)
- Role-playing session (40 minutes)
- Group discussion and/or Q and A (20 minutes)

WORKSHOP B - Room L - 206

THE MYTH OF THE RELUCTANT LEARNER: PROFESSIONAL DEVELOPMENT DISCUSSION CASES FOR EDUCATORS

Shoumita Dasgupta, PhD
Department of Medicine, Biomedical Genetics; Medical Sciences and Education
Karen Symes, PhD
Department of Biochemistry
Angela Jackson, MD
Department of Medicine, General Internal Medicine

Target Audience: Teachers of all levels.

Rationale: As educators, whether in the classroom, at the bedside, or in other settings, we are often faced with challenging teaching moments that can be too quickly attributed to a learner's attitude towards the educational activity. The appearance of unwillingness to engage in what we have to teach makes it easy to make assumptions regarding student motivation. However, as educators it is important not to jump to conclusions, but rather to try to identify the underlying reasons for the student's behavior. In this workshop, we provide cases for discussion, aimed at moving beyond initial assumptions about the "reluctant learner." We provide a mechanism to systematically dissect challenging learner behavior in order to reach the underlying learner issues. These cases are designed to focus on the learners themselves and to initiate discussion on personalized intervention strategies to facilitate individual learning gains. The goal in this session is, through a series of case discussions, for educators in both bedside and classroom settings to develop the skills to effectively identify and address apparently reluctant learners.

Learning Objectives: By the end of the session, participants should be able to:
1. Illustrate the characteristics of apparently reluctant learners.
2. Compare and contrast different manifestations of reluctance in an educational setting.
3. Identify factors contributing to the learner's perceived reluctance.
4. Employ appropriate interventions for different types of reluctant learners based on the root causes of their reluctance.

Outline:

The professional development discussion cases themselves have been used previously in a faculty development setting for clinicians, clinician educators, chief residents, basic science educators, and clinician scientists, as well as for the training of near-peer PhD student and post-doctoral Teaching Fellows (TFs) as small group discussion facilitators. The cases were designed originally for teaching in the clinical setting but were then adapted to provide a classroom context for TF training.

This workshop will begin with an interactive overview of successful techniques for small group teaching, and an overview of challenging learners and possible explanations for their apparent reluctance to engage in the learning activity. This introduction will last approximately 30 minutes.

Participants will be seated at tables based on their primary educational responsibilities, in groups of 8-10 participants, focused on either clinical or classroom teaching. Each group will be responsible for discussing 3 cases over a period of 35 minutes, and for the remaining 25 minutes, the small groups will report back to the room with their analyses and recommendations for the cases.

At the conclusion of this session, we will have collectively elucidated the root cause of common academic struggles among learners and shared creative approaches to helping these students.

WORKSHOP C - Room R 107

TAMING COMPETENCIES, MILESTONES AND EPAs: APPLYING A NOVEL E-TOOL FOR DEVELOPING MEASURABLE OBJECTIVES

Jeffery Markuns, MD, EdM and Laura Goldman, MD
Department of Family Medicine, Boston University School of Medicine

Target Audience: All involved in curriculum development, especially faculty and program directors and coordinators.

Rationale: Have you or your program struggled with the application of competencies, milestones or EPAs? Are you seeking a simple and rational approach to competency-based education that will still meet both your local needs and mandatory national health sciences educational requirements?

Over time, we have created and refined an electronic tool to assist faculty in developing essential skills in writing learning objectives, applying complementary teaching methods and determining appropriate student and program evaluations. This tool is based on core behaviorally-based curriculum principles, using a "WHO, WHAT, HOW, HOW MUCH" model coupled with job aids such as educational word banks and drop down menu choices to accomplish these tasks.

We have used iterative versions of the tool in multiple settings, including with our own BU residency faculty and in our work in Cambodia and Myanmar as a valuable means to engage faculty in a faculty development process to both update skills and produce curricula. In this workshop, we will provide participants with the tool and demonstrate how to use it. Participants may then use their own ideas to write specific competency-based objectives linked to optimally effective teaching and evaluation methods, and provide feedback on the tool and its potential for use in their own settings.

Learning Objectives: By the end of the session, participants should be able to:
1. Describe the "WHO, WHAT, HOW, HOW MUCH" model for instructional design within the context of an electronic tool for curriculum development
2. Apply this instructional design model to develop competency-based learning objectives linked to optimally effective teaching and evaluation methods
3. Explain and disseminate the practical use of this tool for program development to others in their own program and elsewhere

 Outline:

- **INTRODUCTION AND SKILLS REVIEW:**
    - 5 min – Introduction (and participant introductions depending on attendance)
    - 5 min – Review of the need for and challenges of competency-based health sciences education
    - 5 min – Icebreaker discussion among group on the challenges in implementation for their own work in curriculum development
    - 10 min – Review of core instructional design model associated with behaviorally-based curriculum development and the electronic tool

- o 15 min – In-depth review and demonstration of the associated e-tool for curriculum development
- **STEP-WISE APPLICATION OF THE E-TOOL**
  - o <u>STEP 1:</u>
    - ▪ 10 min – Small group and individual work on preparing a competency-based objective
    - ▪ 10 min – Group review and peer feedback on prepared objectives
  - o <u>STEP 2:</u>
    - ▪ 10 min – Small group and individual work on choosing and applying optimal teaching and evaluation methods
    - ▪ 10 min – Group review and peer feedback on teaching methods and evaluation
- **CONCLUSION:**
  - o 10 min – Method review, Q&A, wrap up

References:
1. *The Systematic Design of Instruction.* Dick, W. Carey, L. Carey, J.O. 8th Ed. 2014.
2. "Taxonomy of Educational Objectives: Handbook I – Cognitive Domain", Bloom,B. (ed.), Engelhart, M., Furst, E., Hill, W. & Krathwohl, D., Longman, New York, 1986
3. Toolbox of Assessment Methods. ACGME/ABMS Joint Initiative, 2000.
4. Nuts and Bolts of EPAs. Cate, O.T. Journal of GME 2013.
5. Yhe Family Medicine Milestone Project. A Joint Initiative of the ACGME and the ABFM. October 2015

WORKSHOP D - Room L – 1105

DESIGNING A CUSTOMIZED FLIPPED CLASSROOM: STRATEGIES AND SOFTWARE SOLUTIONS

Kenith Wilson, MEd and Vafa Akhtar-Khavari, MD
Educational Media and Department of Anesthesiology, Boston University School of Medicine

Description:

Part 1: The purpose of this workshop is to explore the idea of the "flipped classroom" and help participants pick the right technological tools. Through a discussion among the participants we are going to pinpoint the goals of their flipped class, and introduce some practical ideas and tools they can use to achieve those goals.

Part 2: Additionally, we will present tips from research on how instructors can best implement these tools to achieve the best outcomes.

Target Audience: Faculty, staff and students who are interested in the flipped approach. We are inviting participants who would like to share their experiences and learn from the experiences of others to continue refining their approach.

Software Demo:
1. Echo360Cloud
2. Echo360 Personal Capture
3. Kaltura Capture Space

Learning Objectives: By the end of the session, participants should be able to:
1. Explain the Flipped Classroom approach
2. Explain the interactive video platforms
3. Ability to identify the appropriate tool for your individual classroom needs

Outline:

- Presentation (10 Minutes)
- Discussion (10 Minutes)
- Hands-on Demonstration of the software tools (1Hr)
- Q & A (10 Min)

Dean's Panel: Fostering the Culture of Teaching, Learning, and Innovation

Discussion Moderated by Matt Trevett-Smith, Ph.D., Director, Center for Teaching & Learning

The following faculty were selected by each school to participate in the Dean's Panel:

Stephen Brady, PhD, Assistant Dean, Graduate Medical Sciences (GMS)

> The GMS Master's Degree Programs have launched a new initiative for outcomes related to Performance Based Management utilizing the Clear Impact Scorecard System. A primary goal is to improve the recruitment of underrepresented minority students. The project endeavors to change the culture, share best practices, elicit stakeholder engagement and create a sustainable system of evaluation.

Chris Dellarocas, PhD, Associate Provost, Office of Digital Learning and Innovation (DLI)

> DLI's mission is to spearhead the University's most innovative projects in online learning, uninhibited by pre-existing culture and structures. Examples of recent successful DLI initiatives illustrate the resources available to foster the spread of innovative pedagogies that harness the power of technology.

Neal Fleisher, DMD, Clinical Professor**,** Director, Predoctoral Periodontics**,** Director, Faculty Development**,** Henry M. Goldman School of Dental Medicine

> Is critical thinking important in education, and scientific and medical practice? While the importance is virtually universally acknowledged, few in academics are able to actually define it, explain how to teach to it, or measure it. Critical thinking can be taught, and learned in a methodical manner. It takes discipline and practice. Teachers ought to spend less time telling students the right answer, and more time asking them the right questions, to foster critical thinking.

Anna Hohler, MD, Associate Professor of Neurology, Assistant Dean of Clinical and Strategic Affairs, School of Medicine

> Clinical education is the cornerstone of medical student education. In recent years, the medical school has increased efforts to strategically cultivate new clinical affiliations in order to provide innovative clinical education opportunities for our students. Through the establishment of our new Kaiser Silicon Valley Branch Campus and Berkshires Rural Initiative, we have created opportunities for our students to experience innovative and diverse healthcare environments and systems. This exposure will give them important insight into their own career goals, and the experience necessary to become leading healthcare practitioners, advocates, and policy makers in the future.

Lisa Sullivan, PhD, Associate Dean of Education, Professor of Biostatistics**,** School of Public Health

> The School of Public Health recently completed a comprehensive and thoughtful process to redesign the MPH curriculum to make it better aligned with the needs of both the students and the workforce. These changes have created classrooms that are more interdisciplinary and heterogeneous, providing opportunities to explore how enhanced communication and educational innovations can help teachers adjust to a student body that is more ideologically, professionally, and academically diverse.

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 1-2

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 3-41

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

1

UTILIZING VIRTUAL SMILE DESIGN FOR PATIENT'S TREATMENT ACCEPTANCE: A MODERN TOOL FOR PATIENT'S EDUCATION

Haidar Alalwi, BDS; Alexander Bendayan, DDS, Restorative Sciences & Biomaterials Department, BUGSDM; Hiroshi Hirayama, DMD, Restorative Sciences & Biomaterials Department, BUGSDM

Digital technologies have revolutionized the way medical and dental care is being provided. In dentistry patient's participation and understanding of their treatment options is critical for acceptance and satisfaction. In this simple case report, we have utilize a digital technique available to analyze the patient's smile and esthetic demands to provide them with a pre expected result prior to any teeth preparation. CEREC SW software 4.4.4 version was utilized to incorporate a patient's frontal photograph and optical impressions were merged to generate a virtual smile and to be presented to the patient for understanding and acceptance.

LEARNING MOMENT: FEATURES OF ASYNCHRONOUS WEBTOOLS THAT MAXIMIZE ACCEPTANCE AND ADOPTION BY MEDICAL STUDENTS

WINNER

Dea Biancarelli[1][*], BS; Andrew Chu[2][#], BS; Mari-Lynn Drainoni, PhD[1, 2] ;

Jeffrey Schneider[3], MD, Alexander Sheng, MD[3]

1. Boston University School of Public Health, 2. Boston University School of Medicine,
3. Boston Medical Center

[*]School of Public Health, Class of 2018   [*] [#] Authors contributed equally

[#]School of Medicine, Class of '2018

Introduction: Learning Moment (LM) is a novel, asynchronous, web-based educational tool to optimize experiential learning. Medical students log concise clinical pearls for reflection and review, and these pearls are shared among an entire community feed of peers. To our knowledge, there is no tool like LM in existence and little is known about what features such educational tools should have to maximize learner engagement. We aim to identify LM features that would optimize acceptance and use by medical students.

Methods: We implemented LM at a tertiary care hospital that hosts an emergency medicine residency and medical student clerkships. 13 of 55 medical student users were interviewed using an ethnographic approach, and a general inductive method was used to analyze and code for potential themes. Once coding was complete, major themes that emerged were used to understand medical students' acceptance of LM.

Results: Three themes emerged from the interviews as features that optimized acceptance and adoption of LM. 1) Maximal simplicity in interface design and ease of use were key factors in engaging students to regularly log clinical pearls. 2) The compatibility of LM's approach to learning with students' personal learning styles affected perceived usefulness and adoption of LM. 3) Department-wide acceptance of LM by faculty and residents drove students to adopt LM into their own workflow. These themes were shaped by students' time scarcity, competing academic priorities, and availability of more traditional learning resources.

Conclusion: Our results inform future design and implementation of new asynchronous educational technology to optimize experiential learning for medical students. Maximal simplicity and ease of use, compatibility with individual learning styles, and multi-level community engagement impact the acceptance and adoption of LM by medical students.

MAKE IT PERSONAL: ENGAGING MEDICAL STUDENTS IN PATIENT SAFETY WITH FAMILY INTERVIEWS

Jodi F. Abbott, MD (MHCM); Cheryl McSweeney, MPH, MD (Department of Family Medicine BUSM); Molly Cohen-Osher, MD (MMed Department of Family Medicine BUSM)

As the biomedical workforce continues to evolve, what was once referred to as an "alternative career" is no longer an accurate way to describe the diverse paths that biomedical PhDs are taking. As such, NIH-supported BU's BEST strives to assist BU biomedical doctoral students and postdocs (trainees) in learning about career options available in the biomedical workforce. Additionally, the program hopes to identify and equip trainees with those skills necessary for successful entry into careers of their choice. BU's BEST has divided the career options a trainee might pursue into six broad "career tracks"; research-intensive (includes academic, industrial, non-profit, and governmental research), business, teaching, law, policy and communications.

Using one career track (the policy track) as an example, we demonstrate how a trainee may move through the program to find and prepare for a fulfilling career. The trainee can avail him/herself of numerous tools made available by BU's BEST including current workforce data, preparation of an individual development plan, alumni mentoring networks, career exploration seminars, skill enhancement workshops, internships, one-on-one career coaching and more. Although we only show one career track here there are similar actions to be taken for all six career tracks.

DISCHARGE SUMMARY WORKSHOP FOR FOURTH YEAR MEDICAL STUDENTS

Marianne Bauer, MD[1]; Radha Govindraj, MD[1]; Eric Jones, MPH[2]; Ryan Chippendale, MD[1,3]

[1]Dept of Internal Medicine, Boston Medical Center, [2]Boston University School of Public Health, [3]Boston University School of Medicine (BUSM)

Sub-optimal transitions of care can lead to patient harm and system inefficiencies. Although warm handoffs are preferred, there are many barriers to achieving this in the current medical system making discharge summaries essential documents. A needs assessment survey of 26 internal medicine (IM) interns was conducted to guide curriculum development on writing effective discharge summaries. Only 1 intern reported receiving formal discharge summary training prior to residency while 15 interns reported a desire for formal training. Given the identified curricular gap, an hour-long interactive workshop was incorporated into BUSM's Advanced IM 4th year medical student clerkship to teach students how to use discharge summaries as an effective means of communication. This workshop includes a discussion of essential elements of discharge summaries and a small group analysis of a sub-optimally written discharge summary followed by a large group debrief. A study key linked, paper-based survey was administered at the start/end (pre/post) of the workshop. There was a statistically significant shift to "completely confident" when comparing pre/post surveys with regards to students' perceived ability to write a succinct and effective discharge summary (p=0.005) and to use a discharge summary to communicate outstanding issues (p=0.002). Additionally, a positive shift in students' attitude of the importance of receiving formal training on discharge summaries during medical school was identified (p=0.006). This session is designed in a reproducible way to allow for universal use to improve student knowledge, confidence, and awareness of the importance of discharge documents in handoffs from hospital to outpatient providers.

STUDENT-LED HEALTH WORKSHOPS IN A HOMELESS SETTING: HOW REACH IMPACTS MEDICAL STUDENTS THROUGH IMMERSIVE SERVICE LEARNING

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Background/Significance: Resources and Education for Adolescents and their Children (REACH) is a medical student-run, BUSM service-learning group. REACH holds interactive workshops at 5 Boston homeless shelters. The goal of workshops is to educate homeless parents about health-related topics, in order to empower them to make informed medical and lifestyle decisions for themselves and their children. REACH members learn to conduct health workshops for homeless parents, in addition to engaging in positive play with homeless children. We aim to evaluate how engaging in REACH has affected medical students' understanding of homelessness and confidence in conducting health workshops.

Methods: REACH members were recruited via email, prior to conducting workshops, to complete an anonymous pre-survey regarding their impressions of homelessness and future engagement in public health outreach. Students were assigned to a homeless shelter and conducted workshops bi-weekly during the academic year. At the end of REACH participation, members completed a post-survey, identical to the pre-survey. Unpaired t-test analysis was used to evaluate statistical significance between pre- and post- survey results.

Results: Comparisons between pre- and post-surveys indicate that members had an overall increase in understanding homelessness and its health implications. There was a statistically significant increase in students' comfort levels in conducting health workshops (p=0.02) and working with homeless populations (p=0.04). Additionally, students felt more informed about the challenges facing the homeless community (p=0.002). After participating in REACH, 94% of students agreed that social justice is an important part of healthcare and that homeless people have the right to basic healthcare.

Conclusions: REACH allows for experiential learning that improves medical students' confidence in conducting health workshops and working with homeless populations. Further investigation is required to determine how participation in REACH impacts future physician engagement in homeless health initiatives.

PRE-CLERKSHIP MEDICAL SPANISH CURRICULUM TRAINS FUTURE LANGUAGE CONCORDANT PHYSICIANS AT A MEDICAL SCHOOL

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Introduction: Limited English Proficiency (LEP) patients in the US are at risk for poorer health outcomes partly due to a lack of matching LEP patients with physicians who speak their language or language concordance (LC).[1] Improved patient care and health outcomes correlates with LC.[2,3] By increasing the number of physicians trained in Medical Spanish, the amount of LC patient encounters grows. A pre-clerkship curriculum allows for maximal integration of Spanish into the student doctor's medical training and provides a framework for lifelong language learning. The study's purpose is to develop a 10-week, pre-clerkship Medical Spanish curriculum at Boston University School of Medicine to address the need to train concordant physicians. Learning objectives include student proficiency in Spanish grammar, vocabulary, and reading comprehension.

Methods: The research design is a descriptive study with a nonrandom, nonequivalent group of 18 pre-clerkship students. A focus group developed a pre-clerkship Medical Spanish curriculum with lectures and a syllabus with vocabulary, phrases and conversational dialogues. Facilitators for the weekly one-hour lecture were a Spanish-speaking physician and student volunteers. Students reviewed the syllabus and spent 30 minutes/week speaking Spanish with Spanish-speaking seniors from the Spanish Immersion program. To measure educational outcomes, the students took home-grown satisfaction surveys throughout the course and a standardized electronic test.

Results: Six of the participants completed both the pre- and post-course proficiency tests with an average improvement of 18.14%. Student course satisfaction was an 8.67/10 average positive rating. Student feedback preferred more time spent on syllabus dialogues and Spanish Immersion conversations and less on reading the syllabus.

Conclusions: The success of the curriculum in improving Spanish proficiency will prepare the participating students to provide more patient-centered care as physicians. Future goals include guiding Spanish Immersion seniors to carry out clinical scenarios and developing student assessment strategies of clinical performance using skills learned from the course.

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LEARNING MOMENT: AN INNOVATIVE ASYNCHRONOUS PLATFORM THAT FOSTERS EXPERIENTIAL LEARNING IN MILLENIAL MEDICAL STUDENTS

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Introduction: Experiential learning is critical for successful growth and the development of new skills and behaviors in medical students. Asynchronous learning is a teaching method favored by millennial learners, because it is an online resource that overcomes time constraints and facilitates group interaction. Learning Moment (LM) is a web-tool that integrates experiential and asynchronous learning to fill a missing need in medical education. The aim of this study was to explore whether LearniWorkshopng Moment provided an effective asynchronous platform for students' experiential learning.

Methods: We implemented LM at a busy tertiary care hospital that hosts an Emergency Medicine residency and medical student clerkships. 13 of the 55 participating medical students rotating through the BMC Emergency Department (ED) were interviewed using an ethnographic approach, and a general inductive method was used to analyze and code for potential themes. Once coding was complete, major themes that emerged were used to understand how LM affected the medical student educational experience.

Results: Medical students had positive experiences using LM, and all found it intuitive and easy to use. Three key themes related to the educational experience emerged from the interviews. First, LM reinforced the learning and memorization of clinical pearls that students were taught by faculty during their ED shifts. Second, the web platform offered an opportunity for students to stop and carefully reflect on what they learned, further reinforcing that learning. Last, LM enhanced overall learning by providing a repository of shared knowledge that everyone could learn from.

Conclusion: LM achieved its purpose of promoting experiential learning in medical students through an asynchronous platform that adapts to time constraints and appeals to millennial trainees. This novel tool fills a much needed gap in medical education, and the benefits of its use should continue to be explored in the ED and other specialties.

DEVELOPMENT OF AN INTERNAL MEDICINE "BOOT CAMP" FOR MEDICAL STUDENTS

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Background: Internal medicine "boot camps" are an emerging strategy to ease the challenging transition from fourth year of medical school to internship, but prioritized topics vary by institution.

Aim: We aimed to determine the most important content for a boot camp curriculum though a needs assessment at the Boston University School of Medicine (BUSM).

Methods: Fourth year medical students applying to internal medicine residency programs (N=47) and first year internal medicine interns (N=40) at BUSM were anonymously, electronically surveyed about managing 27 clinical scenarios, skills, and procedures. We chose these topics based upon existing medicine boot camp curricula and internal discussion. Responses were ranked on 4 point scales of importance or interest. Participants were also asked open-ended questions about their concerns for intern year and the most important topics for inclusion in a boot camp elective.

Results: Survey response rates were 51% (N=24) for medical students and 58% (N=23) for interns. Of clinical scenarios, medical students prioritized chest pain (N=21, 88%), shock (N=21, 88%), and severe electrolyte disturbances (N=18, 75%) as 'very important' for inclusion. Current interns ranked chest pain (N=19, 83%), acute hypoxemia (N=15, 65%) and altered mental status (N=15, 65%) as 'very important' for inclusion. Both medical students and interns rated time management and ECG interpretation among the most important clinical skills. Medical students were 'very interested' in almost all procedures, with thoracentesis, paracentesis, and arterial blood gases ranking highest (N=17 for each, 71%). Interns expressed lower interest in procedures than medical students, with only arterial blood gases (N=12, 52%) receiving more than three 'very important' responses. In open-ended responses, medical students and interns were most concerned about managing acutely decompensating patients (N=7 and N=5 respectively) and time management (N=6 and N=3 respectively). Additionally, medical students stated concerns about procedural skills (N=3).

Conclusions: Medical students and interns have similar priorities in acute clinical scenarios and skills for inclusion in an internal medicine boot camp. However, medical students expressed more interest and concern about learning procedures compared to interns. This needs assessment will guide development of a boot camp curriculum at BUSM, and can inform similar electives at other institutions.

ARE THERE POST-BAC ADMISSION PREDICTORS TO HELP GUIDE FUTURE DENTAL SCHOOL SUCCESS?

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Purpose: BU Goldman School of Dental Medicine (GSDM), in collaboration with the Division of Graduate Medical Sciences (GMS) at Boston University School of Medicine (BUSM), implemented a pipeline program in 2005 to increase the number of under-represented minority (URM) and socioeconomically-disadvantaged students admitted to GSDM. The Oral Health Sciences (OHS) master's program has been extremely successful with 91% (140 of 154) of their enrolled students matriculating to dental school. We have previously shown that a strong performance in the master's program (OHS-GPA for those accepted: 3.50 ± 0.30 *vs.* those not accepted: 2.92 ± 0.20, p <0.001) is predictive of future dental school success. Here, we continue this work by evaluating additional undergraduate academic variables that may serve as positive predictors of success in the OHS graduate program and, ultimately, in dental school.

Methods: Students enrolled in OHS during the years 2014 to 2016 were evaluated; undergraduate GPA, gender, age, basic science coursework, and majors were collected from admissions records. Academic performance was assessed by overall GPA in the program (OHS-GPA), Dental Admission Test (DAT) scores, and successful matriculation to dental school. Undergraduate institutions' college rank or rigor was determined using Barron's Profile of American Colleges (http://www.barronspac.com/). Criteria were evaluated by ANOVA to determine if any parameters could serve as additional predictors of success and thus aid in graduate admission selection.

Finding: Pre-admissions data was gathered for a total of 85 enrolled OHS students between the years 2014-2016. Gender percentages were similar (51.8% vs 48.2%, females/males) and the mean age was 23.8 years. OHS performance was measured as overall OHS-GPA. Comparing the undergraduate record of OHS enrollees who majored in a science verses a non-science degree shows no difference in overall OHS-GPA performance (p=0.11) and DAT score (p=0.55); however, science majors took significantly more science courses (p=0.005). Students from the most competitive schools performed stronger in OHS than students from middle- and lower-ranked schools (p=0.037); however, 90% of OHS graduates matriculate to dental school.

Conclusions: Students performing well in the Oral Health Sciences master's program successfully matriculate to dental school. Differences in undergraduate preparation due to college rank and rigor can be overcome with the completion of a strong post-baccalaureate master's program.

INTEGRATING THE INTEGRATED CORE: THE BUSPH PROJECT TO DEVELOP A CASE STUDY LINKING CORE COURSES

Eugene Declercq, Ph.D.; Rachael Greenberg, MPH, DrPH Program, BUSPH

Schools of public health (SPHs) have responded to the need to develop public health practitioners who can think in systems terms by developing curriculums that emphasize the integration of skills and content. This emphasis has been accelerated by revised accreditation criteria which focus less on discrete courses and more on systems approaches. In particular, SPHs have been revising their core curriculums to combine previously distinct courses into more comprehensive offerings. The challenge they now face is how to best integrate the integrated core? The Boston University SPH moved to an integrated core for all incoming students in Fall, 2016, consisting of four 4 credit courses: "Quantitative Methods," "Leadership & Management," "Health Systems, Policy and Law" and "Individual, Community and Population Health." While the courses integrated material within each course, one of the challenges that arose in the first iteration was identifying ways to encourage student thinking *across* these comprehensive core courses. This poster will report on initial efforts to develop a case study that illustrates how core skills and perspectives in public health need to be integrated to consider complex problems. The case will focus on maternal mortality in both the U.S. and internationally. The plan is for students to move through the challenges of measuring maternal mortality to combining the understanding of the levels and causes of mortality with the associated behavioral, cultural, environmental, legal and ethical challenges into a format that can be presented to decision makers to enhance the likelihood they'll get on the agenda. This is followed by consideration of the management and leadership challenges of implementing an effective program or policy. The poster should serve as a discussion forum with faculty and administrators of the feasibility of using a case to facilitate integration of student thinking in their core courses.

"TWO SIDES OF THE COIN" A TWO-WAY MEDICAL LEARNING EXPERIENCE: A REVIEW OF CURRICULA OPPORTUNITIES IN TEACHING MEDICAL STUDENTS HOW TO TEACH

Amareen Dhaliwal, Nicholas Argy M.D., J.D.

Teaching medical students and patients is a core part of a physician's undertakings. This study aims to provide clues as to how to develop and implement teacher training methods. We look at ways to innovate in delivering an effective teaching-to-teach experience in the medical school curricula. Already recognized by the ancient Greek philosophers, peer-to-peer questioning then and peer-assisted learning (PAL) today have been internationally recognized as the privileged toolbox of medicine learning and clinical practice. We proposed a framework to understand better how medical students, faculty members, fellow residents, patients and medical schools and institutions benefit from PAL. In fact, understanding course material, tackling medical lab skills, time savings of faculty, and health provider costs savings have been recognized as clear outcomes of the PAL process. With two areas of medical practice, physical examination and resuscitation we showed how PAL training help in gaining knowledge, skills, student's motivation and effective communication expertise. We reviewed how PAL-based learning is created and perceived in health centers in the US, Canada and Europe. Furthermore, we explore tutor and tutee learning, development, and outcome benefits from including PAL in the medical school curricula. Finally, we show how the current data digitalization and new artificial intelligence technologies create opportunities in e-learning which potentiates a contribution of web-based PAL at the med-school and the clinic. Moreover, the findings brought together by this review further demonstrates the value of peer-to-peer teaching in the learning experience, the positive outcome in supporting patient education and in building highly competent medical teams across specialities, nursing and other supporting functions in medical practice.

INDIVIDUAL, COMMUNITY AND POPULATION HEALTH: DEVELOPING AND IMPLEMENTING AN INTEGRATED CORE COURSE FOR 21ST CENTURY MPH EDUCATION

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Public health is inherently interdisciplinary and inter-professional. Thus, the MPH requires a rigorous, structured, and carefully sequenced curriculum, including a well-designed, interdisciplinary core. The MPH curriculum redesign at Boston University School of Public Health (BUSPH) includes a new Integrated Core Curriculum (ICC) featuring four integrated introductory core courses, including the Individual, Community and Population Health (ICPH) core.

The ICPH core incorporates critical content by focusing on the biological, environmental, socio-economic, behavioral, and cultural factors that impact human health, the global burden of disease, and health disparities. It aims to embed public health's core values and functions, focusing on population health concepts, and the processes, approaches, and interventions that identify and address major health-related needs across the life span.

Course development engaged faculty from each BUSPH department. Over a semester, we identified key content from previously discipline-based core courses (social and behavioral sciences, maternal and child health, health law, environmental health); wove discipline-based content throughout a 14-week course using cross-cutting themes (life course, social justice, and environmental factors) and global and domestic cases; designed a major team-based project; and developed assessments for individual and team-generated work based on course learning objectives.

By designing the integrated core with active stakeholder input, ensuring cross-discipline content, and utilizing competency-based assessments, the ICPH core will train professionals who can integrate different domains of knowledge and perspectives, engage in cooperative learning, and internalize important public health values, including respect, equity, and stewardship. Thus, the structure and outcomes of the new core mimic practice in the workplace.

INTERNSHIP TO HELP THE CAREER TRANSITION FROM RESEARCH PhD TO MEDICAL EDUCATOR

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Purpose: Biomedical research PhDs are highly specialized and their career transitions to jobs outside research laboratories are 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 fill this gap.

Methods: At BUSM we have launched a training program for Ph.D.s that would like to become medical educators. For this two faculty members, a medical educator and a basic scientist with career development background, have teamed up. This team has designed an innovative internship that offers these PhDs exposure to the medical environment. The internship was advertised through the BEST program at BU.

During this internship, trainees receive dual training in:

1) the clinical relevance of their area of scientific expertise. The trainees undergo clinical shadowing experiences to increase their exposure to the relevance and practical application of basic science content.

2) best practices in teaching. Their educator training initially focuses on best practices in teaching biomedical sciences and will culminate with the trainees developing educational materials for use in a clinical training setting.

In addition, the trainees benefit from the career advise of all the mentors.

Results: This pilot program started in October 2016. We will present data on the trainees that participated in the program, their challenges to participate in the program, and their progress to date. We will describe the challenges and lessons learned in the development of the approach of this training program in this pilot year from the perspective of the PhD trainees.

Discussion: Our pilot program is designed to provide Ph.D. trainees with the hard and soft skills to appreciate, develop, and ultimately teach integrated curricular content. We will discuss how the resources available at BUSM enabled the development of this training program.

INTEGRATION OF THE TEACHERS: EDUCATOR TRAINING PROGRAM TO BRIDGE THE FOUNDATIONAL-CLINICAL SCIENCE DIVIDE IN MEDICAL TRAINING

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A major trend in the recent evolution of American medical education has been the effort to more fully integrate the foundational and clinical sciences in medical curricula. Examples nationwide include attempts to integrate individual lessons, courses, years of the curriculum, and entire curricula. However, despite extensive energy invested in this challenge, practical curricular integration of foundational knowledge with clinical practice remains a significant challenge. One notable barrier to integration efforts may be the fundamental differences in the perspectives, knowledge, and skillsets of basic science and clinical educators. While these educators are experts in their respective fields, typically neither group has been trained to present content from an integrated perspective.

Numerous authors have advocated training basic science educators in the clinical applications and perspectives of their scientific areas of expertise. Thus trained, these basic science educators will be well versed in the perspectives of both foundational and clinical sciences and therefore will be better equipped to achieve true integration of the material. Conversely, more consistently infusing foundational science knowledge into clinical training will also facilitate clinical educators' contributions to integrated curricula.

Innovation: Here we describe a unique interdisciplinary training program currently in its pilot year at BUSM. Our program is designed to train biomedical scientist trainees in the skills and perspectives necessary to ultimately teach biomedical sciences to a clinical audience. Our Ph.D. Postdoctoral trainees receive dual training in: 1) the clinical relevance and application of their area of scientific expertise and 2) best practices in teaching.

Methods: The call for trainees for our program was posted as an internship through the BU BEST program, an NIH-funded initiative that aims to prepare biomedical trainees for all career paths. The trainees undergo clinical shadowing experiences with the intention to expose them to the relevance and practical application of basic science content in the clinical setting. The trainees also receive educator training on best practices in teaching the biomedical sciences which will culminate with the trainees applying these principles when they develop relevant educational materials for the clinical setting in which they shadowed.

Discussion: The goal of this program is to address a growing need for medical educators who appreciate the application of basic science content in a clinical setting. In addition, these experiences will benefit the trainees' career opportunities by enhancing their teaching skill sets, providing them with a unique addition to their portfolios of teaching experiences, and increasing their pools of advisors/mentors. Furthermore the trainees will make an impact in the medical students' understanding of the practical application and relevance of foundational science topics. We describe the challenges and lessons learned in the development of this program, the design of its curriculum design in the pilot year, and preliminary feedback from the program mentors and trainee participants.

3D PRINTED MODELS TO VISUALIZE FASCIAL AND PERITONEAL LAYERS OF THE ABDOMEN IN MEDICAL GROSS ANATOMY

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The objective of our study is to determine the utility of 3D printed models to understand the layers of the abdominal wall and peritoneum. The clinical importance of the abdominal wall structures and their continuity with other regions of the body is an important topic to medical gross anatomy students. Through dissection, these layers can be appreciated by an experienced anatomist or surgeon, but its subtlety is often lost by new learners of anatomy. To supplement anatomical dissection, which is irreplaceable, we created a 3D printed model of a cross section of the abdomen with an exaggerated version of each layer. This model represents layers using rigid polylactic acid (PLA) 3D printed filament, Play-doh®, and flexible thermoplastic elastomer (TPE) 3D printed filament. The model was presented to 50 medical gross anatomy students at three optional sessions (14-17 students per session). In each session, the fascial planes were presented as they apply to an incision through the anterolateral abdominal wall. Next, students were placed into groups of 3-4 students to assemble a three-piece model of the abdomen. Students worked together in small groups to color and label a 2D artistic representation of the model to validate the 3D concept into a 2D document that may be used to study beyond the session. Once the abdomen was thoroughly reviewed using the 3D printed model as well as 2D artistic representations of each of the model structures, students were given an assessment in their small groups where they were asked to identify the layers of the thoracic wall and pleura/pericardium on 2D artistic representations of the thorax. This assessment probed the ability of the students to apply a concept of fascial layers from the abdomen to the thorax. On average, the group performance on the assessment was 93%. Common misconceptions were identified and clarified in the large group following a review of the answers. Students received a survey 3-4 days after their session. This survey, a modified Likert scale, explored the effectiveness of the instructor, the model, and the session. Of 50 students, 30% of attendees responded to the survey. All students agreed that the instructor explained the material clearly, encouraged students to participate, and answered questions clearly. A large proportion (87%) of students agreed that the model and the session helped them better understand the material of the course and overall topic. This study provides a framework for a larger study to examine the effectiveness of these 3D models to understand the fascial and peritoneal layers of the abdomen and thorax. Overall, students responded positively to the sessions and found that the most effective part of the session was the 3D model, which allows for a tactile medium to observe and comprehend the fascial layers and their continuity with other structures. We conclude that this preliminary data supports the effective use of 3D printed models as a supplement to anatomical dissection in understanding fascial layers of the abdomen.

SERVICE PRIDE: IMPROVING LGBTQ MEDICAL EDUCATION THROUGH COMMUNITY ENGAGEMENT

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Introduction: Lesbian, gay, bisexual, transgender and queer (LGBTQ) adolescents are a vulnerable population that face significant barriers to healthcare.[1,2] Medical students having limited exposure to the LGBTQ population has undoubtedly contributed to this problem. Therefore, integration of LGBTQ-specific medical education is imperative, as integration has been shown to improve overall healthcare quality for LGBTQ patients.[3] Service PRIDE, an organization at the Boston University School of Medicine (BUSM), aims to achieve this by having medical students interact with at-risk LGBTQ youth living at Waltham House, a home for displaced LGBTQ adolescents. We determined if BUSM students felt more prepared to provide comprehensive care for LGBTQ identifying individuals after joining Service PRIDE.

Methods: Following each visit to Waltham House, pre- and post- qualitative surveys of 10 questions were administered to 12 medical students. Students were surveyed about lessons learned from their visit, experiences they would share with their peers, and how they believed their experiences interacting with the residents would influence their development as future physicians.

Results: Among 12 medical students, 83.3% reported never having previously worked with LGBTQ adolescents, and 50% had never worked with the LGBTQ community. Students reported increased sensitivity to gender pronouns, increased open-mindedness to complexities of gender and sexuality, and a better understanding of the difficulties faced by LGBTQ adolescents. Every student reported feeling more comfortable interacting with LGBTQ individuals and expressed desire to change their approaches to working with LGBTQ patients.

Discussion: Service PRIDE is an effective program to familiarize medical students with the LGBTQ population in their early medical training. Students felt significantly more prepared to interact with LGBTQ individuals and became more aware of the health disparities they face. Results of this pilot program serve as a basis for future studies to assess the impact Service PRIDE has on both BUSM medical students and the Boston LGBTQ community.

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INTEGRATION OF NUTRITION MEDICINE IN THE CURRICULUM AT BOSTON UNIVERSITY SCHOOL OF MEDICINE

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Background: For several decades, national surveys have reported that the most common causes of deaths in the US are preventable and related to nutrition. Physicians have been urged to counsel their patients, yet they lacked formal education and training in nutrition.

Objective: To partner with various BU communities and enhance medical students' knowledge, attitudes, and counseling skills in nutrition medicine.

Intervention: A novel student–centered model of nutrition medicine education that focused on student mentored extra-curricular activities to develop, evaluate, and sustain nutrition medicine was developed and subsequently operationalized with support from a Nutrition Vertical Integration Group (VIG, 2007) and a medical student group of interest in nutrition (SNAAC, 2009). We used a team-based approach to enhance learning in the classroom and the clinical setting. Currently, nutrition is more visible in the medical school curriculum because "nutrition" is included in the title of the PrISM pathways and new opportunities are available to improve practice skills in clerkship years. We have used the *National Academy Awards* guide from the *NIH* to identify nutrition objectives (n=78) and topics for the curriculum and we have conducted several evaluations.

 Results: We found that ¾ of nutrition objectives were met in 2011. Although hours of instructions are difficult to quantify, the medical school has more than quadrupled the number of hours dedicated to nutrition by 2017 and has gone from being unrecognized to being in the top 7% of US medical schools for nutrition instruction. As a result, we work nationally in a collaborative with the American Society for Nutrition and NIH to improve nutrition instruction in medical schools and residency programs.

Conclusions: While these findings are encouraging and more hours are dedicated to nutrition in the medical curriculum, there is a need for more practice skills instruction and support for nutrition educators.

ESOPHAGOGASTRODUODENOSCOPY (EGD) TRAINING IN UNDERGRADUATE MEDICAL EDUCATION: HOW MUCH TRAINING IS NEEDED?

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Background: The usage of simulation during undergraduate medical education is increasing. However, there is an absence of an established curriculum or standard for endoscopy simulation in undergraduate medical education. The goal of this study was to determine how much time medical students need to spend training on the simulator to achieve proficiency in upper endoscopy simulation.

Methods: Consenting first and second year medical students at Boston University School of Medicine trained on the EndoVR (CAE Healthcare) upper endoscopy simulator over a period of four weeks, at a recommended rate of fifteen minutes of training per week. Pre- and post-training surveys were administered to assess participants' attitudes toward the quality and amount of time spent training, and their confidence in performing an upper endoscopy. The validated GAGES-UE (Global Assessment of Gastrointestinal Endoscopic Skills – Upper Endoscopy) and a custom scoring tool (ESTAT – Endoscopy Skills and Tasks Assessment Tool) were used to score endoscopy proficiency pre- and post-training. Proficiency is defined as score greater than 80% on both GAGES-UE and ESTAT. Using SAS, a t-test was performed for GAGES/ESTAT score differential pre- and post-training, and linear regression was used for association between GAGES/ESTAT and total training time. The primary outcome measured was total GAGES-UE and ESTAT scores to determine if there was improvement in endoscopy proficiency after training.

Results: 24 medical students have completed the required training and proficiency exams. The average total hours trained is 1.1 +/- 0.4 hours. GAGES-UE scores improved by an average of 10.9 +/- 3.2 (p < 0.0001) points from 6.2 +/- 1.6 to 17.1 +/- 2.8 after the recommended minimum 1 hour training time. ESTAT scores also improved by an average of 11.7 +/- 7.8 (p < 0.0001) points from 16.0 +/- 6.8 to 27.7 +/- 5.3 after training. Percentage of students who met the criteria for proficiency increased from 0% to 45.8%. Score improvements from the GAGES-UE and ESTAT tools were not found to be related to the time spent training on the simulator.

Conclusions: Although students' GAGES-UE and ESTAT scores and proficiency increased after simulation training, there was no significant correlation between the time spent training and the level of improvement. Based on this, 15 minutes a week of training is sufficient for medical students to improve proficiency in upper endoscopy simulation. In addition, students' attitudes were favorable to the usefulness and quality of the simulator training. Our data suggests that simulation training during undergraduate medical education is appropriate and feasible. Further research needs to be continued to establish a specific training duration and frequency standard for medical students to achieve proficiency in upper endoscopy simulation.

THE SNAP CHALLENGE UPDATE: INCREASING AWARENESS ABOUT FOOD INSECURITY AMONG STUDENTS

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Purpose: For the last five years, the Student Nutrition Awareness and Action Council (SNAAC) has conducted the SNAP challenge, which asks students to spend a week as if they were solely reliant on SNAP benefits. The challenge aims to (1) increase students' understanding of food insecurity and (2) utilize social media to disseminate their experiences and spread awareness.

Methods: Participants were asked to allot $4.40 per day for food purchases during the week of the challenge. Volunteers contributed their experiences to the BUSM SNAP Challenge blog, which was shared via personal accounts on Facebook and Twitter. The blog platform provided data on the site traffic. A post-challenge, 22-question survey was distributed for the past three years, and descriptive analysis was performed on all responses.

Results: Data from 41 participants over the past three years demonstrated the obstacles faced as well as the lessons learned as a result of the SNAP Challenge. Most notably, although 46.3% had not personally endured food insecurity, 97.5% of participants overall had a better understanding of it following the challenge. Most participants (97.6%) felt that they gained more empathy for those suffering from food insecurities and had a greater realization of the importance of food resources on patients' health (85.3%). Additionally, blog statistics showed that during the week of the challenge (January 22 - 28, 2017), a total of 1,248 visitors were logged, peaking at 520 visitors on January 26.

Discussion: The challenge was successful in increasing awareness of the challenges faced by low-income populations and encouraging discussion about the issue outside of formal education, both among participants and those that read the blog. Overall, the SNAP challenge continues to be a beneficial experience for students who have not previously experienced food insecurities, especially as it relates to their future care of patients with inadequate food resources.

THE DEVELOPMENT OF A NEW PROGRAM IN HEALTH SCIENCES EDUCATION AT BU

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Background: Over the last decade, demands on educators have increased exponentially as students demand greater quality and accrediting agencies seek to be better regulate and standardize education across the country. Correspondingly, many institutions have begun new degree-based programs to train faculty specifically in the educational skills. BU identified the same need, developing a new program in health sciences education.

Methods: Staff and faculty from BU performed a search for programs throughout the region and the country with similar programs. We then brought together a diverse group of faculty from across the medical campus as well as the School of Education to discuss and review what is most needed for educators in the health sciences fields, our strengths at BU, and design a new curriculum.

Results: The faculty identified curriculum development, didactic and clinical teaching skills, research and evaluation to be core elements for any broad-based degree program in health sciences education. The faculty identified BU's greatest strength as our practical approach to teaching and care, and thus centered the program around a practicum-based model, where working students could take lessons from the program and apply them directly to their work under faculty mentorship. The faculty also felt such a program should be applicable to a wide range of students, so opened the program to all health professions fields and created an advisory board with members from across the BU Medical and Charles River campuses, including Sargent College, to help ensure the program is responsive to a wide variety of interests.

Conclusions: This new program will help to meet the needs of a wide range of educators in Boston and beyond to design novel curricula, apply enhanced teaching skills and perform research and evaluate their own educational programs.

BUILDING COMPETENCE AND CONFIDENCE IN CLINICAL SKILLS: A SYSTEMATIC, FLIPPED CLASSROOM APPROACH TO LEARNING BEDSIDE CARDIAC ASSESSMENT

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Purpose: Bedside cardiac assessment (BCA) knowledge, skills and attitudes include performing a history and physical examination, integrating data with pathophysiology, prioritizing differential diagnoses following a clinical encounter, and applying it to patient care. The urgent problem is fewer instructors feel comfortable teaching BCA skills and the deterioration becomes self-perpetuating.[1,2] Also, developing student trust in clinical decisions is both integral to BCA competence and an expectation of recent AAMC professional development initiatives.[3] The study's goal is to develop a flipped classroom on a systematic approach to BCA to build junior clinical learners' competence and confidence.

Method: After student surveys of a BCA seminar[4] revealed the need for practicing, processing and peer teaching, the authors developed the flipped classroom to incorporate active learning into the BCA systematic approach.[5] In a quasi-experimental study of it, an intervention group studies the pre-class videos and practice questions online followed by two in-class sessions and a control group receives traditional teaching.

Results: The project produced thirteen short, pre-class videos sandwiched between practice questions and two in-class sessions comprised of a think-pair-share case discussion, JVP exercises, heart-sound competition, and simulated clinical encounter. A set of 28-item pre- and post- questionnaires measures educational outcomes.

Discussion: The systematic approach to BCA in a flipped classroom format provides students an innovative opportunity to participate in self-directed, pre-class videos and questions and collaborate in in-class active learning activities. These experiences represent day-to-day clinical competencies and incorporate notions of confidence and patient trust. Medical and physician assistant students from BUSM, the University of Kansas, and collaborating institutions in Canada, Australia, Singapore, and Japan are the target population to analyze the educational effectiveness of this innovation.

Significance: The study's critical impact is to improve healthcare by increasing the effectiveness of clinical skills training and to help reverse the cycle of clinical skill deterioration.

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MY LIFE, MY STORY: USE OF NARRATIVE INTERVIEW TO DEVELOP PATIENT CENTERED CARE COMPETENCIES IN INTER-PROFESSIONAL LEARNERS IN A VA SETTING

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Background: Clinicians must by necessity be highly focused on providing excellent evidence-based care. It is difficult for even the most dedicated clinician to have time to know the patient as an individual beyond medical diagnoses. The ability to gather and synthesize this information is crucial for all practitioners who interact with patients.

This innovative educational initiative teaches trainees across disciplines to think of their patients as complex beings and let the patient tell their story.

Methods Learners from multiple disciplines (physician's assistant, medicine, psychiatry, social work, nurse practitioner, pharmacist, occupational therapy, psychology) conduct a structured life history interview with a Veteran that is synthesized into a concise, well-written narrative, and placed in the electronic health record. Trainees are debriefed in real time to enhance a safe learning environment. Trainees provide formal feedback on their experience via anonymous surveys. Copies of the finished story are given to patient and family.

Results: 60 learners from various disciplines have participated in this project. Learners across disciplines and levels of training universally rated this experience to be a good use of their time "to a large extent."

"This project was a wonderful way to build a relationship far beyond daily care. It allows the veteran to be heard but more importantly it reminds them that someone cares and is listening."

"It allows the patient to express who they are and where they come from. It gives them an identity outside of their healthcare conditions and helps us to understand the patient.

"It helped me understand how the patients' longstanding values influenced their medical decisions and interactions with providers, which evoked compassion. "

Conclusions/Future Directions: This is an effective inter-professional education tool. It was universally well-received and feasible across disciplines. In the future we will assess the impact of these stories on frontline care providers.

CHALLENGING THE STATUS QUO: A DIGITAL APPROACH TO DENTAL EDUCATION.

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Introduction: While dental implantology has become a major focus in clinical dentistry, its importance in dental education has lagged behind. Educating dental students in the disciplines of implantology and the emerging field of "digital dentistry" have become an important initiative at Boston University Henry M. Goldman School of Dental Medicine (BUGSDM).

At BUGSDM, we have taken a leading role in developing a new standard in teaching these concepts and skills to pre-doctoral students. The scope of this initiative is a first of its kind in dental education; resulting in professional interest as evidenced by invitations to speak at national and international dental meetings.

Methodology: DMD3/AS2 students were provided the traditional implant curriculum; DMD2/AS1 students were exposed to the new curriculum. This new curriculum included hands on exposure to reading/manipulating a CBCT scan; virtual placement of an implant; merging optical scan files with CBCT, and designing a surgical guide. Students placed a dental implant in the simulation lab on custom designed models, and learned digital and elastomeric impression techniques. A 7-question survey was sent to evaluate their experience.

Results: A preliminary 50% response rate was recorded.

DMD3/AS2 student results reveal 55% found their course beneficial, as opposed to 68% of DMD2/AS1. On a scale of 1 (not beneficial) to 5 (extremely beneficial), the weighted average for their respective hands on portion:3.77 for DMD3/AS2; 4.3 for DMD2/AS1.

Confidence in planning an implant on a CBCT was weighted at 3.16 in DMD3/AS2, 3.55 for DMD2/AS1.

General knowledge about implantology: 3.85 and 4.17 for DMD3/AS2 and DMD2/AS1, respectively.

49% of DMD3/AS2 did not feel confident in making a digital impression, compared to 80% of DMD2/AS1.

However, 72% vs 77% felt confident with elastomeric impressions (control).

Overall, 67% of DMD3/AS2 and 87% DMD2/AS1 would feel confident placing dental implants in private practice after this course.

SCHOLARLY IMPACT OF STUDENT AUTHORSHIP ON SURGICAL RESEARCH

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Introduction: Current literature on student authorship in research utilizes the H-index (H_i), a measure of scholarly impact. We sought to analyze student authorship rates over time in a major academic surgical journal by comparing the scholarly impact of corresponding authors that did not publish with students to corresponding authors that published with students.

Methods: We compared the H_i of all corresponding authors (CA) for manuscripts published in the Journal of the American College of Surgeons (JACS) over time (2006, 2008, 2010, 2012, 2014). We further grouped published articles into those with student authors (SA) and those without (nSA). H_i of CAs were identified based upon Scopus and Web of Science determinations. The median and mean H_i, standard deviation, and 95% Confidence Interval (CI) were compared between groups and over time.

Results: The number of SA increased from 70 to 146, while the SA as first or second author increased from 21 to 44. Mean H_i was similar for CAs independent of SA involvement for each year evaluated, (2006: 30.1 vs. 32.6, 2008: 29.2 vs. 29.4, 2010: 27 vs. 27.4, 2012: 26.2 vs. 25.6, 2014: 22.3 vs. 20.3). Median H_i for CAs without and with SA were similar for each year evaluated. The change in mean H_i for CAs who utilized SA in earlier years (2006, 2008, 2010) and their current H_i (2016) was similar to that of CAs who did not utilize SA (2006: 22.4 vs. 20.7 [CI: ±4.0, ±2.5], P=0.51; 2008: 20.2 vs. 20.6 [CI: ±3.3, ±2.2], P=0.86; 2010: 19.2 vs. 18.3 [CI: ±3.3, ±2.7], P=0.66).

Conclusions: The number of student authors published in JACS is increasing. This comes without detriment to the scholarly advancement of corresponding authors, while positively impacting students. Development of programs to better integrate students into surgical research early on may encourage their pursuit of a career in surgery.

INITIATIVE TO MEASURE AND IMPROVE APPROPRIATENESS OF LOW BACK PAIN IMAGING

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The HEDIS data set shows that for patients in the 18-50 age group without red flags, the rate of appropriate imaging studies for lower back pain is only 75% nationwide. This implies a significant amount of unnecessary exposure to radiation, and consumption the patient's and the providing team's time, in addition to the immediate financial costs absorbed by our healthcare system.

We gave 3rd-year medical students a lecture about lower back pain and had them use that information to process sampled imaging studies to create a mimic of the HEDIS dataset's metric. Upon identifying inappropriate studies, we privately contacted the ordering providers and informed them about our project.

We established BMC's baseline imaging appropriateness rate at 82% during the first two weeks of our study. We evaluated 695 low back pain imaging studies and ended with an overall appropriateness percentage of 93.8%. We identified 14 inappropriate orders and reached out to those providers with information about our project.

We reached our goal with the HEDIS metric, although many patients were excluded from the study due to red flags or due to lack of information in the case of outside referrals. The small sample of inappropriate studies makes it difficult to know if our intervention truly caused the gain in appropriateness. Despite those uncertainties, during this project we raised awareness of the issue by providing feedback to 14 key providers, and providing low back pain imaging and quality improvement education to many future physicians.

ANATOMICAL TAPHONOMY AT THE SOURCE: ALTERATIONS TO A SAMPLE OF 84 TEACHING SKULLS AT A MEDICAL SCHOOL

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Osseous anatomical teaching specimens have the potential to end up under forensic examination if they are divorced from their original context and turned into or seized by law enforcement. A likely source of these remains is a medical school, where students routinely examine human skulls to study anatomical structures. The original preparation of these skulls and the effects of repeated manipulation leave behind multiple taphonomic alterations. To determine the taphonomic characteristics of former anatomical teaching skulls, a sample of 84 currently in use at the Boston University School of Medicine was examined for a broad suite of traits. Taphonomic characteristics that can be used to distinguish former anatomical teaching skulls include the presence of mounting hardware, drilling, regular vault sectioning, plastic reconstruction, pen and pencil markings, labeling, patina build up from handling, and shelf wear. These characteristics may be used to distinguish skulls from this source from other common sources that end up under forensic examination, including former trophy, ritual or cemetery skulls.

ENGAGING PROVIDERS WITH TELEHEALTH TECHNOLOGY: TRAINING MODULES AND COMMUNICATION STRATEGIES

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The health status of rural populations is disproportionately affected compared to urban populations as a result of socio-economic challenges. Studies have shown that chronic health conditions are more prevalent among rural individuals compared to urban individuals. Application and utilization of telehealth services such as video-conferencing are the keys to ensuring health access to rural individuals in Massachusetts; however, some challenges prevented providers and patients to engage with and utilize these services. Student consultants from Boston university school of public health and Henry M. Goldman School of dental medicine did a needs assessment and literature review on the use of telehealth by patients living in rural areas of Massachusetts. The team developed an online training intervention to facilitate provider use of telehealth, and ideas for communications strategies to engage providers. Tele-T training modules aim to engage and onboard users quickly with telehealth technology.

DEVELOPING QUALITY LEADERS OF TOMORROW: INTEGRATING A GENERATION OF MEDICAL STUDENTS INTO DEPARTMENTAL QUALITY INITIATIVES

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Introduction: There is a call from leading organizations in medical education to train medical students to evaluate and participate in quality improvement (QI), yet few publications have addressed this need in a meaningful way. At our institution, a large-scale, multi-departmental initiative was designed to directly integrate third-year medical students into quality improvement initiatives throughout their clerkship rotations. Our objective was to demonstrate success of a proof of concept, multi-departmental initiative to inspire and engage medical students, educators, and quality leaders in the effort to improve patient care through safety and quality interventions.

Methods: The study took place over one academic year from 2015-2016 and arose from the Boston University School of Medicine, associated with a large, urban safety-net hospital. Study participants included a class of third-year medical students on clinical rotations. Multi-departmental quality improvement initiatives were introduced across the clerkship curriculum. Outcomes were measured by student knowledge, as determined by pre- and post-test; behavior, as determined by participation; and potential for clinical impact, as determined by number of quality interventions.

Results: Students showed improved knowledge of QI interventions from the beginning to the end of the year with a significant change in scores between pre- and post-test responses (p=0.0007). The median of the difference score was 1 with a Q1 25th percentile of -1 and a Q3 75th percentile of 2. A total of 2239 patient safety interventions were completed throughout the year.

Conclusions: It is imperative to incorporate quality improvement into medical student education. At this institution, medical students were successfully incorporated into departmental initiatives with goals of increasing student engagement in quality improvement, providing experiential education beyond classroom learning, and improving patient care and quality. This model is adaptable and importable to other organizations, demonstrating the reality and future of large-scale educational transformation.

MEDICAL STUDENTS AS EFFECTIVE PATIENT EDUCATORS TO CHAMPION QUALITY: TRAINING STUDENTS TO EDUCATE PATIENTS ABOUT OBSTETRIC VENOUS THROMBOEMBOLISM PROPHYLAXIS

Pooja Shah, Natalie Tukan, Molly Siegel, Jodi F. Abbott MD

Purpose: To train students in using a teach-back method to educate patients about obstetric venous thromboembolism (VTE) prophylaxis and champion departmental quality improvement (QI) efforts.

Background: Medical schools are increasingly emphasizing patient education in the clerkship years. Effective education is essential to increase patient buy-in when spearheading quality initiatives. This project was designed to train third-year medical students in teach-back education while concurrently enhancing a departmental QI effort to increase obstetric VTE prophylaxis.

Methods: Third-year students on the Ob-Gyn clerkship watched a student-created instructional video on teach-back teaching and a case-based presentation on VTE prophylaxis. Students assessed three patients for VTE risk and counseled patients on interventions. Students recorded pre- and post-counseling assessments of patient knowledge and responded to a survey about their experience.

Results: Since June 2016, 92 students have participated in counseling 250 patients. Following student counseling, a significantly increased number of patients exhibited understand of: what VTE is and why it is harmful (46% increase, $p < 0.0001$), VTE risk factors (157% increase, $p < 0.0001$) and prophylactic interventions (159% increase, $p < 0.0001$). Students agreed or strongly agreed that their participation improved: understanding of VTE prophylaxis (91%), confidence counseling patients (96%), quality of patient care (62%), and understanding of QI (83%). 94% of students stated that they plan to use teach-back teaching in future patient encounters.

Discussion: Students appreciated having a role and responsibility in patient care through counseling, and felt that the experience of counseling patients and using a teach-back method was rewarding and contributed to their education. Per students' records, patients improved their understanding of VTE following counseling. This intervention demonstrates that medical students can successfully counsel patients to enhance a quality improvement intervention.

IMPROVING PNEUMOCOCCAL 13-VALENT CONJUGATE (PCV13) VACCINATION RATES AND PHYSICIAN DOCUMENTATION IN THE GERIATRICS CLINIC

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Background: The CDC recommends that individuals 65 years and older should be vaccinated with Pneumococcal 13-valent Conjugate (PCV13). The Geriatrics clinic at a large urban hospital had a PCV13 vaccination rate of only 10%. The documentation process to ascertain if physician offered the vaccine or if patient declined was also ambiguous and inefficient. This quality improvement project served to evaluate the current status of PCV13 vaccination rates and methods within the clinic and to make quantitative improvements in vaccination rates and physician documentation.

Methods: The team conducted qualitative interviews prior to the intervention with the physicians and patients to better understand barriers to vaccination. The root cause analysis, using a fishbone diagram identified the causal factors. Using this insight, a Plan-Do-Study-Act (PDSA) cycle was implemented. The first intervention involved the medical assistants and physicians in the clinic who received formal presentation to explain the process. The medical assistants were asked to review the immunization record, identify if PCV13 vaccination was needed, and if so, a bright sticker was placed on the rooming sheet. The physician was then asked to check the rooming sheet and if a sticker was present, discuss the vaccination with the patient. The sticker also served as a reminder for the physician to properly document the PCV13 vaccination status in the electronic medical record.

Results: 71 chart reviews from a 3-day period were conducted pre-intervention. Of the 29 patients who needed PCV13, 3 received the vaccination (10.3%), while there was no physician documentation in 23 charts (79.3%). 104 chart reviews from a 4-day period were conducted post-intervention. Of the 20 patients who needed PCV13, 13 received the vaccination (65%), while there was no documentation in 5 charts (25%). Post-intervention vaccination rates improved by 54.7% and missing documentation decreased by 54.3%.

Conclusions: Creating awareness by formal presentation, standardizing the vaccination documentation process, and utilizing medical assistants served as an effective system to improve PCV13 vaccination rate in the geriatrics clinic. It also increased the physician documentation in electronic medical record.

BRONCHOSCOPY SIMULATION TRAINING FOR MEDICAL STUDENTS: A USEFUL TOOL?

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Background/Significance: There is limited exposure to procedural simulation training in medical education. Additionally, there is limited research on the use of bronchoscopy simulation as a tool to improve procedural confidence and anatomical knowledge in medical students. We aim to determine whether self-directed bronchoscopy simulation training augments the learning of bronchoscopy skills and bronchial anatomy in medical students.

Methods: In this ongoing prospective study, medical students were recruited at an academic institution. A thoracic surgeon evaluated participants using the Bronchoscopy Skills and Tasks Assessment Tool (BSTAT), a validated 65-point checklist, to determine baseline knowledge of airway anatomy and bronchoscopy technique. Students were instructed to participate in a self-directed training session of at least 15 minutes, each week for four weeks. Students were surveyed and evaluated using the post-training BSTAT following their four weeks of training.

Results: Out of 49 participants, 36 completed the training (73.5%). Pre- and post-training BSTAT score averages were significantly different ($p<0.0001$), from an average score of 11.1 to an average score of 45.9. Participants trained for an average of 66.1 minutes. Although total simulation training time was not significantly associated with improved BSTAT scores, there was a trend towards significance. Additionally, students in their first year of medical school had greater improvements in their BSTAT score. 23 out of 36 students (63.9%) reported feeling well-prepared for future live bronchoscopies. Supplemental physician-assisted training was suggested.

Conclusions: Self-directed bronchoscopy simulation training in medical school has been shown to improve knowledge of bronchial anatomy and bronchoscopy skills. Further investigation is needed to determine the impact of bronchoscopy simulation on procedural confidence, academic performance, and student engagement in thoracic and pulmonary specialties. Additionally, future directions include determining a minimum training time required for achieving bronchoscopy proficiency, as defined by the BSTAT.

PRACTICAL, SKILLS-BASED COMMUNICATION TRAINING FOR DENTAL STUDENTS

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Objectives: Communication and Interpersonal Skills is one of six domains in which new general dentists must be competent in order to enter the profession. The challenge is effectively teaching communication without overwhelming the student's schedules or unreasonably increasing the demands on faculty. Boston University's Henry M. Goldman School of Dental Medicine (GSDM) has instituted a training program designed to meet this challenge.

Methods: The training consists of one, five-hour workshop followed by in-clinic mentoring and assessments. It is skills-based rather than didactic. To measure training effectiveness, a seven-question survey was developed to measure students' confidence in communicating with patients in different clinical situations. This survey was administered prior to the students' attendance at the workshop and will be re-administered prior to graduation. The 2016 graduates at GSDM were invited to take part in the survey and will serve as a historical reference since they graduated prior to the inception of this communication training. The survey questions were analyzed for frequency distributions of responses and a combined score for all questions was tabulated. IRB approval was obtained.

Results: The four-year DMD 2018 students (N=100) and two-year Advanced Standing 2017 students (N=74) participated in the survey prior to their communication workshops. The majority of students (86-96%, depending on question) were very confident/confident/fairly confident in their ability to connect with patients at a first meeting, determine patient treatment wants and needs, and to present treatment plans in an easily understandable manner. However, the students were not as confident communicating with upset or difficult patients (64-72%) or when there were complications identified with treatment (72-77%). The combined score for all questions for each group was 60.5 (DMD '18) and 61.6 (AS '17).

Conclusions: The pre-workshop survey identified areas of weakness as it relates to students' confidence in communication skills and will guide communication training. Further surveys will help us to gauge training effectiveness.

PRECLINICAL MEDICAL STUDENTS SEEK MORE EDUCATION ABOUT SEXUAL ASSAULT

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Background: During the first semester of medical school at Boston University, there is little existing curriculum on caring for survivors of sexual assault. Yet, students begin seeing patients in clinic in just the first few weeks. According to the Rape, Abuse & Incest National Network, 1 in 6 women has been the victim of an attempted or completed rape in her lifetime. Because of this high prevalence, it is likely that students will encounter sexual assault survivors early on in their training. We hypothesized that preclinical medical students feel unprepared to address sexual assault with patients who disclose, and that medical students are interested in learning more.

Methods: We assessed current student perception of their sexual assault education through an online survey with Likert-style questions that was distributed to all medical students at Boston University at the start of the second semester. Of the 78 students who responded, 58 were first-years.

Results: 61.5% (48/78) and 62.8% (49/78) of students responded "disagree" or "strongly disagree," to statements that they feel prepared to counsel a patient who discloses sexual trauma and that they feel confident in their ability to use appropriate language when supporting a survivor of sexual trauma, respectively. 64.1% (50/78) of students disagreed or strongly disagreed that they feel satisfied with the education they've received about sexual trauma at Boston University School of Medicine thus far, and 88.5% (69/78) of students were interested in learning more.

Discussion: Our survey showed that students desire more sexual assault education to feel better prepared to support survivor patients. Based on the survey results and discussions with faculty, a new educational lecture about sexual assault was added to the first month of the first-year curriculum, and a new student group will be supplementing required curricula with optional talks and service-opportunities.

DEVELOPING A MENTORING PROGRAM FOR MS4 STUDENTS PURSUING GENERAL SURGERY RESIDENCY

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Background: Mentoring is essential to medical students' development. We created a yearlong program—beginning at the start of MS4—designed to mentor students planning to apply to surgical residency. The aim of this study was to understand how participants experienced the mentoring program and how it impacted their intern year.

Methods: We conducted focus groups, interviews, and an online survey at several points before and after the match to gauge participants concerns and to better understand their experiences.

Results: We identified four key themes. First, participants stated they benefited greatly from the program, describing their mentor as a primary influence on their applications, interview preparations, and decision-making. Second, participants felt prepared to begin residency due, in part to their mentors. Third, mentorship comes from both surgical residents and attendings, both of which have a positive influence on students' confidence and preparedness. Lastly, participation in a Surgical Bootcamp enhanced preparedness for those entering general surgery.

Conclusions: Mentorship is a vital component of preparing for surgical residency. Surveys have been sent to graduates so we can assess the longitudinal effect of our mentorship program as well as any new mentorship that they now receive in their first year of residency.

USING BASIC RESEARCH PAPERS TO FACILITATE CURRICULUM INTEGRATION

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WINNER

Purpose: A major challenge in developing an integrated medical curriculum is having both students and faculty appreciate linkages across traditional course boundaries. We wished to facilitate faculty and student interest and cross-disciplinary understanding through the inclusion of current basic science research papers.

Methods: We introduced research paper discussions into a graduate medical course that integrates disciplines of cell biology, histology, embryology, anatomy, immunology and endocrinology into a tissue and organ centered approach. Each 1 hour lecture was followed by a 10-15 minute discussion of a current basic research paper. No notes were provided outside the discussion. When possible, a non-lecturing course faculty was chosen to lead the paper discussion. Material from the paper discussions was included on weekly quizzes.

Results: Faculty chose 24 papers from journals with a median impact factor of 6.0. Major successes included opportunities to review previous topics, preview upcoming topics, and cover peripheral topics that served to further illustrate lecture points (such as pericytes in a circulatory system lecture). A detailed list of topics and integrated cross-topics that were covered will be presented. Quiz questions based on paper discussion encouraged lecture attendance. Students performed equally on paper vs. lecture based questions, which comprised 9.2% & 40.4% respectively of their course grade. For 14/24 topics, a faculty other than the primary lecturer was present to lead discussion of the paper. Faculty were overwhelmingly positive about the experience. Students achieved an enhanced appreciation for the relevancy of the lecture material, and for learning required vocabulary. Narrative student feedback is currently being collected.

Conclusions: Discussion of current basic research is an excellent way to facilitate integration of disciplines in a curriculum. Students appreciated the relatively low stress inclusion of current, basic research papers to facilitate their organizing of course material, absent traditional course structures.

INNOVATIVE MEDICINE CLERKSHIP SITES: TRAINING PHYSICIAN ASSISTANTS IN TRANSITIONAL CARE UNITS

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There is an increasing need for adequate clinical training sites for physician assistants (PA). We describe an innovative clinical training site in the transitional care unit (TCU) of a Community Living Center (CLC) in the VA Boston Health Care system. The CLC is a 112 bed facility with a Medicine teaching service comprised of physicians and physician assistants. The majority of patients come from the acute care hospital of VA Boston. CLCs have been extensively used for trainees of other disciplines but few have been used as clinical rotation sites for PA students.

The 4 week rotation consists of 2 BU PA students paired with a PA or an MD. They follow 4-6 patients and participate in all aspects of care from admission to discharge. Unique CLC attributes include: 1) High ratio of providers to patient, with increased medical complexity; 2) Direct interaction and teaching from faculty rather than other trainees; 3) Longitudinal care fosters patient-provider relationships and study of disease course; 4) Exposure to diverse clinical scenarios and abnormal physical exam findings; 5) A robust interprofessional training environment.

Our site has been operational for 18 months and has accommodated 31 PA students. Student evaluations (*n* =31, scale 1-5, mean reported) have shown high satisfaction with an overall average score of 4.6 on 14 measures. These include: quality of relationship to supervising clinician (4.9), quality and quantity of bedside teaching (4.7), ability of the faculty to foster a conducive learning environment (4.8).

TCU/CLCs are effective sites for clinical medicine rotations for PA trainees. The subacute care setting offers a unique clinical opportunity to be exposed to a broad range of disease complexity and multidisciplinary team-based care. This allows students to master fundamental clinical skills and has been associated with high levels of student satisfaction.

OPTIMIZING INTERDISCIPLINARY COLLABORATION FOR STUDENTS: EVALUATING MODELS OF COORDINATED CARE

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Background: Interdisciplinary teamwork is effective for managing complex patients and improves patient opinions about quality and efficiency of care,[1] but there are few known models of how to best deliver interdisciplinary team care.[2] Boston University Community Health Alliance for Medical Professionals (BU CHAMPs) allows students in nutrition, social work, and medicine to provide interdisciplinary team-based care for vulnerable patients. The objective of this study was to evaluate multiple patient visit designs to assess which method would both optimize patient and provider satisfaction while increasing clinic efficiency and patient care coordination.

Methods: Three models of care coordination were designed for an interprofessional primary care team that consisted of two medical students, one physician assistant student, one nutrition student, a family medicine resident, and a social work intern. In the first model, the interdisciplinary team offered interventions to the patient concurrently. The second model paired trainees from specific disciplines together to address multi-faceted patient concerns at different times during the visit. The third model separated each discipline to determine if patients preferred having a large team administer care simultaneously, or that multidisciplinary services were provided during a single visit. Patient and provider evaluations and time taken to complete the visit were recorded for each model and compared using the Student's t-test.

Results: The three models were administered over five patient visits. The second model was significantly more time-efficient (p=0.0043) than our third model, which represented the traditional method of primary care. Provider surveys (n=17) indicated that this was a preferred model of care. Patient satisfaction with the team remained constant.

Conclusions: Our findings determined that the second model was the most time-efficient. However, each model had its strengths and implementation should depend on patient-provider goals. Future plans include further model development and creation of an interdisciplinary team tool kit for students.

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BOSTON PUBLIC HEALTH ETHICS COLLABORATIVE

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Largely invisible structural forces exist that thrust wealthy, white children into critical thinking and problem solving exercises, while simultaneously pushing low-income communities of color as far out of the reach of the philosopher's armchair as possible. Historically, low-income people of color have been systematically consigned to education tracks with fewer opportunities and lesser potential for intellectual, personal, academic and financial growth. A prominent way this plays out is through vocational/technical high schools and other types of "career academies", which are predominantly comprised of poor and/or non-white students who have been assigned (or have chosen) a "career" at the age of 14 and subsequently are educated in the skills they will need to be successful as future employees. Their curriculum, however, lacks almost any type of philosophy course or consistent exercises in critical thinking/analysis. This sobering reality, in combination with my background in teaching middle and high school students, led me to establish a philosophical community of inquiry focused on my own main area of expertise – public health ethics. In Boston, MA, there is one vocational-technical high school and two other public high schools with a specific health career emphasis. During the 2016-2017 academic year, the Boston Public Health Ethics Collaborative (BPHEC) was launched at one of these latter schools, Kennedy Academy for Health Careers. Currently in its infancy, this is one graduate student engaging high school sophomores in intense ethical discussion and debate; however, future plans include expanding to more schools as well as involving other Boston public health graduate schools. A city-wide collaborative community is the ultimate goal. This poster will include a brief analysis of vocational-technical schools/career academies as viewed through a lens of systematic oppression, an overview of essential elements of BPHEC (curriculum, planning, implementation, etc.), highlights of successes and failures, and next steps/plans for the future.

ON-THE-GO TRAINING: DOWNLOADABLE MODULES TO EDUCATE STUDENTS IN CARE FOR SEXUAL ASSAULT SURVIVORS

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Introduction: Many medical providers encounter patients who have experienced sexual assault. The positive and negative interactions of these patients with the medical system greatly impact their long-term outcomes. Training for medical students to provide appropriate and compassionate care for this population is challenging and often lacking in most medical school curricula.

Materials and Methods: This study describes the development of three downloadable modules as an educational resource to train medical students to provide improved initial medical management and care for survivors of sexual assault. Once downloaded, the modules are self-directed and available to students as a supplement to their medical school curriculum. Interdisciplinary experts in the field of sexual assault management from multiple institutions in the Boston, including Boston Area Rape Crisis Center, assisted in the module development. Associated materials include surveys to assess student attitudes and satisfaction outcomes, and pre- and post-tests of medical knowledge. In this study, thirty-two students of various classes at Boston University School of Medicine volunteered to beta-test the one-hour curriculum.

Results: Statistical analysis of pre-test and post-test scores were performed. Student feedback suggested removing information deemed redundant to shorten a module, and addition of a statement that promoted inclusivity of patients of different gender identities. Following overall positive results from beta-testing at our institution, these modules are available to interested students in all four years and will also be added to a fourth-year elective focused on caring for survivors of sexual assault.

Conclusion: these three modules provide information on the initial medical management of survivors of sexual assault and specific guidance and suggestions for practice, so that medical students can feel more confident and empowered to care for this population. Empowering and educating students to care for this patient population has the potential to result in improved health outcomes.

REPEAT EXPOSURE IMPROVES RECOGNITION OF SKIN LESIONS IN MEDICAL STUDENTS

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Background: Skin cancers are common malignancies. Physicians of various disciplines are well-placed for detection. Retention of this key content is challenging, as students learn the features of skin cancer in their second year, but may not encounter such lesions clinically until years later. We sought a method to enhance the long-term retention of features of cutaneous malignancies.

Objective: To evaluate medical student recognition of skin lesions one year after a repeat exposure, where the second exposure was either lecture-based or interactive question-and-answer-based (Q&A-based).

Method: The Class of 2017 at BU School of Medicine was designated as cohort 1, and the Class of 2018 as cohort 2. Both cohorts received initial exposure to cancerous and benign growths in the week-long dermatology course during their second year. Cohort 1 received a second lecture-based exposure, and cohort 2 received a second Q&A-based exposure one month later. Satisfaction scores were collected based on the second exposures. A fifteen-item image-based test was administered to both cohorts one year later.

Results: Cohort 2 scored a mean of 13.3% on an initial fifteen-item image-based test during the Q&A-based repeat exposure. By design, no test was given to cohort 1, as the intervention was lecture-based. A similar fifteen-question test with different images was given to both cohorts one year later. The mean scores for cohorts 1 and 2 were 68.9% and 70.4% respectively [$p=0.51$, comparing cohorts 1 and 2]. Cohort 2 showed significant improvement between pre and post-intervention scores [$p<0.001$]. Post-intervention surveys showed that 60% of cohort 1 and 91% of cohort 2 agreed or strongly agreed that the second exposure was valuable for learning.

Conclusion: Repeat exposure to malignant and benign skin lesions enhanced retention. Whether the repeat exposure was lecture-based or interactive Q&A-based did not affect retention at one year, but did substantially impact satisfaction scores.

PILOT OF A NOVEL FACILITATOR-FRIENDLY SIX-MONTH MINDFULNESS CURRICULUM FOR INTERNS

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Background: Burnout affects physician well-being, patient care, and safety. Mindfulness is the quality of being fully present in the moment during everyday activities, and mindfulness curricula have been shown to reduce physician burnout and improve wellness and empathy.

Objective: To design and pilot a six-month mindfulness curriculum during pediatric internship in order to assess feasibility and acceptability.

Design/Methods: Adopting a longitudinal study design, we implemented a 7-session mindfulness curriculum during the first six months of internship in a large pediatric residency program. Prior to implementation and following the final session, we invited all interns to complete surveys that included the Maslach Burnout Inventory, Jefferson Scale of Physician Empathy, 5-Facet Mindfulness Questionnaire, and items assessing resident knowledge, attitudes, and behaviors about mindfulness practice. Data were analyzed using chi-square and t-tests.

Results: All 50 interns participated in the curriculum. The survey response rate at baseline was 100%, and six months later was 84%. Curriculum implementation was feasible, as all 7 sessions occurred as scheduled, and the vast majority of interns (80%) attended at least three sessions. Participants' knowledge, attitudes, and behaviors about mindfulness practice were impacted by the curriculum, as a majority reported: Improved attitudes toward mindfulness (69%); Increased knowledge on how mindfulness impacts well-being (67%); Increased knowledge on how to apply mindfulness in real-life (62%); Mindfulness training positively benefited their lives (62%). We successfully assessed participants' levels of burnout, empathy, and mindfulness at baseline and six-month follow- up; these scores did not significantly change.

Conclusions: Our novel six-month mindfulness curriculum targeting physician trainees was feasible to implement during a busy pediatric internship. Interns reported improved knowledge, attitudes, and behaviors toward mindfulness. Larger, controlled studies are underway to determine how this six-month curriculum impacts trainee burnout, empathy, and mindfulness.