

# NEGEA 2018 Annual Retreat ABSTRACTS

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## Workshops

### Workshop 1 - Helping students to maximize learning from the assessment process

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<sup>1</sup>Columbia University College of Physicians and Surgeons, <sup>2</sup>Rutgers, Robert Wood Johnson Medical School, <sup>3</sup>Penn State Hershey College of Medicine, <sup>4</sup>Carle Illinois College of Medicine

#### **Rationale**

How can schools and educators move beyond making traditional normative grading or student promotion-related decisions, and embrace programmatic assessment<sup>1</sup> to support and drive deep and long-term student learning? How can schools improve the quality of their assessments to take advantage of the science of “test-enhanced learning”?<sup>2</sup> In this workshop we will present a framework of evidence-based continuous quality improvement (CQI) questions that curriculum committees can use to review and redesign assessment systems to help students to learn content actively, synthesize it, and master and retain content. The questions fall into four categories: 1) culture and motivation of assessment considerations, such as how an honor code and grading system can support an assessment system that can help develop student integrity and self-regulation, 2) curricular assessment schedule considerations, such as how frequently students should be assessed and when board exams should be scheduled to promote learning, 3) exam and question structure considerations, such as what exam question types can best facilitate learning, and 4) assessment follow-up and review considerations, such as what form student review and exam feedback should take.

#### **Objectives**

Participants will identify evidence-based best practices about student learning from assessments and exams to bring back to their institutions.

#### **Methods and Session Format**

Overview (15 minutes): We will provide an overview of key review articles, studies, discussion pieces, and scholarly resources for several sample continuous quality improvement questions, so participants have a sense of the foundational evidence and knowledge base to guide discussion of each topic.

Small group (25 minutes): Participants will be divided into four groups and assigned to discuss the CQI questions from one of the four categories, so they can assess their school’s adoption of evidence-based assessment strategies, and determine what they might do differently. They will be provided with blank “Moving From” and “Moving To” charts that they can fill in to outline possible assessment-related changes for their schools. For example, when reviewing the question “When should students be provided with opportunities for cumulative assessment or progress exams”? and its related evidence, they might write that schools could move from not offering cumulative assessments prior to Step 1 and move to instituting cumulative progress exams after each semester, because students will work to keep content available over time if they expect a cumulative exam<sup>3</sup>

Large group (25 minutes): Report out from each group’s “Moving From” and “Moving To” charts from each category, and reflections on activity; reflections will be summed up on a white board.

Individual work (10 minutes): Participants will be able to develop action plans, including individual “Moving From” and “Moving To” charts that can discuss with their home institutions for promoting the adoption of evidence-based assessment strategies.

#### **Experience**

The speakers are Educational Psychologists and education specialists at different medical schools.

#### **References**

Please list references below.

1- Schuwirth LWT, van der Vleuten CPM. Programmatic assessment: from assessment of learning to assessment for learning. *Med Teach*. 2011;33:478-485.

2- Larsen DP, Butler AC, Roediger III HL. Test-enhanced learning in medical education. *Med Educ*. 2008;42:959-66.

3- Szupar KK, McDermott KB, Roediger HL. Assessment steers learning down the right road: Impact of progress testing on licensing examination performance. *Med Teach*. 2010;32:496-9.

## **Workshop 2** - Using small group facilitation to enhance basic science- clinical science integration

L. Kaplan, K. Lin, D. Schwartz, D. Karras, R. Sullivan, B. Buttarro, G. Sterling  
Lewis Katz School of Medicine at Temple University

### **Rationale**

As preclinical education moves from discipline-based courses to integrated blocks there is still concern in how to instruct and evaluate self-directed and life-long learning prior to beginning clinical education. As part of curricular re-evaluation at LKSOM clinical reasoning conferences (CRC) were developed to integrate basic science principles with clinically-focused problem solving while requiring participants to acquire, analyze and synthesize information in a self-directed manner, while sharing information and problem solving and presenting information in a team-based format. This format, based on the Constructivist model of learning that posits that the act of learning is based on the process that connects new knowledge to pre-existing knowledge, allows pre-clinical students to transition from passive and directed instruction to self-directed, independent and collaborative learning while focusing on clinical implications of basic science knowledge. In this model students receive the clinical case outlines, general question topics, preparation guidelines and a link to the session pretest five days prior to the session. Students prepare independently using either prior lectures, assigned readings, new materials, key articles or independent means. The formative pretest is used to allow self-assessment and the questions are discussed at the beginning of the session. During the session students work in assigned teams of 5-6 within their doctoring college/learning society and address specific questions that are based on preparatory material, previously covered basic science content. Each team will prepare an on-the-fly presentation to address the question and one team will be selected to present their answer to the entire group and guide a classroom discussion. Teams are evaluated based on the clarity of their content and discussion, their presentation and their teamwork. Clinical faculty members from various specialties serve as facilitators, not content experts during the sessions.

### **Objectives**

1. Learn the concepts needed to develop a basic science/clinical topic integrated clinical reasoning conference.
2. Observe a video recording CRC presentation and use of the Clinical Reasoning Conference evaluation rubric
3. Learn and practice the basic-science/clinical science facilitation skills used in these sessions.

### **Methods and Session Format**

#### Session outline

Overview and introduction to the CRC model and constructivist learning theory/large group ~ 10 minutes

Observe and critique a video taped CRC session/large group~ 10 minutes

Develop and simulate a mock CRC session on a core topic based on provided materials/small group ~ 30 minutes

Practice small group facilitation skills/small group ~ 10 minutes

Lessons learned/Debriefing ~ 15 minutes

#### Materials provided

Sample faculty/facilitator guide

Sample student pre-reading and cases

Sample scoring rubric

### **Experience**

Drs. Kaplan, Lin and Schwartz are core-clinical educators responsible for integrating clinical reasoning and clinical medicine into the basic science systems blocks.

Drs. Buttarro and Sullivan are core-basic science educators responsible for consistency and oversight of the basic science block systems block directors and working with the core-clinical educators.

Dr. Karras is Associate Dean for the preclinical curriculum and is responsible for the oversight and integration of the pre-clinical curriculum

### **References**

Please list references below.

LCME Standard 6.3; Self-directed and life-long learning

Dennick R. Constructivism: Reflections on twenty-five years of teaching the constructivist approach in medical education. *International Journal of Medical Education*. 2016;7:200-205. Kitchen M. Facilitating small groups: How to encourage student learning. *The Clinical Teacher*. 2012; 9: 3-8.

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## **Workshop 3** - How we successfully flipped our Multiple Mini Interviewer Training

R. Barlow, L. Greene, C. Jewkes, L. McElhinney, J. Gallant, C. Nicholas  
University of Vermont Larner College of Medicine

## **Rationale**

The Multiple Mini Interview (MMI) is a multi-station interview process with proven reliability and predictive validity<sup>1</sup>. At the Larner College of Medicine at the University of Vermont (LCOM), we instituted the MMI into our admissions process four years ago. The role of the interviewer in MMI is different as compared to a traditional interview and we found that formalized training of our interviewers was critical to our successful implementation of the MMI. Our training focuses on the difference of MMI from the traditional interview and rationale for its use, interviewer techniques optimal for the MMI process, and the operational aspects of the MMI process. Initially, our trainings were traditional didactic presentations with video supplementation.

During this time, the LCOM was also seeking to create an optimal learning environment by responding to a growing body of evidence that active learning significantly increases learner performance in science, engineering, and mathematics compared to lecturing<sup>2</sup>. Active learning emphasizes activities and assessments which promote higher-order cognitive skills such as application, analysis, evaluation, and creation of knowledge<sup>3</sup>. In keeping with this institutional commitment, the admissions leadership team transitioned our training from a didactic model of instruction to one that employs active learning strategies.

In this session we will report our experience moving to an active learning approach for training our 160 interviewers at the LCOM. Active learning strategies will be introduced and we will discuss which methods we utilize. Further, participants will have the opportunity to participate in a “flipped classroom” as well as simulation activities. The flipped classroom is utilized to educate on the rationale for MMI implementation. The simulation activities are used to instruct on an interviewer technique known as active listening and to provide experience based learning of MMI processes by participation in a mock circuit.

## **Objectives**

1. Introduce techniques for active learning which can be used for interviewer training sessions, including the flipped classroom, think-pair-share, and simulation.
2. Introduce active learning techniques which can be utilized on interview day, including pair-share review of individual stations.
3. Identify active learning strategies for use in your interview training programs.

## **Methods and Session Format**

Introduction: 10 minutes

Activity 1: Flipped Classroom (20 minutes): Participants will experience how snowball and peer teaching methods can be utilized to instruct on the background and rationale of the MMI.

Activity 2: Role-play- Thinking Hats (20 minutes): Participants will experience how we teach the active listening technique to our interviewers.

Activity 3: Simulation: (20 minutes) Participants will experience how we instruct about the MMI process by participating in a mock MMI circuit, both as an interviewer as well as an applicant.

Conclusion: 5 minutes

## **Experience**

All speakers are involved in training of interviewers at The Robert Larner, MD College of Medicine at the University of Vermont

Jan Gallant, MD: Associate Dean for Admissions

Raie Barlow, MD & Laura Greene, MD: Vice Chairs for Admissions

Cary R. Jewkes: Director of Medical Student Admissions

Liz McElhinney: Assistant Director of Admissions

Cate Nicholas, PhD, MS, PA, EdD: Director of Simulation Education and Operations, Director of the Standardized Patient Program

## **References**

Please list references below.

1) Eva K, Reiter H, Trinh K et al. Predictive validity of the multiple mini-interview for selecting medical trainees.

Medical Education 2009; 43: 767-775.

2) Freeman S, Eddy S, McDonough M. Active learning increases student performance in science, engineering, and mathematics. PNAS 2014; 111: 8410-8415.

3) Huggett K and Jeffries W. An Introduction to Medical Teaching, 2nd ed. New York. Springer. 2014.

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**Workshop 4** - Setting goals for life-long learning: how self-determination theory can inform goal-setting conversations with learners

S. Oza, F. Milan, P. Joo

Albert Einstein College of Medicine

## **Rationale**

A goal of medical education is to train “life-long learners” - physicians who, throughout their careers, reflect upon their learning in order to identify gaps in their knowledge and skills, and subsequently fill those gaps through the process of self-directed learning. To foster this process, faculty may engage learners in a discussion of their learning goals. Self-determination theory (SDT) is concerned with the motivational processes that may drive self-directed learning (Ten Cate et al 2011). While SDT proposes that much of the drive for achievement comes from intrinsic motivation, several “autonomy-supportive” teaching behaviors have been suggested that can help foster this drive (Reeve 2002). By adopting some of these teaching behaviors during goal-setting conversations with learners, faculty may promote students’ intrinsic motivation to learn and achieve.

## **Objectives**

At the end of this session attendees will be able to:

- Describe the main features of SDT, including autonomy supportive teaching behaviors
- Discuss how SDT can inform goal setting conversations with learners
- Apply concepts from SDT to goals and expectations-setting conversations with learners

## **Methods and Session Format**

00-12 Introductions & Icebreakers: Participants will discuss their prior experiences with goal-setting conversations (Pair-share discussion followed by large group debrief)

12-20 Background/overview: Workshop faculty will provide a brief overview of SDT and the implications of SDT for medical education, specifically focusing on and autonomy-supportive teaching behaviors which can help faculty discuss learning goals with learners (Didactic presentation by workshop faculty)

20-23 Video #1: Short video demonstration of a goal-setting conversation between a faculty member and learner, faculty does not display autonomy-supportive behaviors (Demonstration; Participants record observations on worksheet with prompts)

23-33 Debrief video #1 (Large group discussion)

33-36 Video #2: Short video demonstration of a goal-setting conversation between a faculty member and learner in which the faculty member displays more autonomy-supportive behaviors (Demonstration; Participants record observations on worksheet with prompts)

36-46 Debrief video #2 (Large group discussion)

46-58 Role play: Attendees will be invited to participate in a scripted role play exercise in which they can practice discussing goals and expectations with a learner guided by SDT, utilizing autonomy supportive behaviors (In triads, participants will have opportunity to play the role of faculty, learner, and observer)

58-72 Debrief participant role play (Large group discussion)

72-75 Wrap up (Workshop faculty)

## **Experience**

Sandra Oza is Assistant Professor of Medicine and is Co-Director for the Introduction to Clinical Medicine Program at Einstein.

Felise Milan is Professor of Medicine, Director of the Introduction to Clinical Medicine Program and Director of the Clinical Skills Center at Einstein.

Pablo Joo is Associate Professor of Family and Social Medicine and Associate Dean for Medical Education and Curricular Affairs at Einstein.

## **References**

Please list references below.

Reeve J. 2002. Self-determination theory applied to educational settings. In: Deci EL, Ryan RM, editors. Handbook of self-determination research. Rochester, NY: University of Rochester Press. pp 183-203.

Ten Cate O, Kusrkar RA and Williams GC. Medical Teacher 2011; 33:961-973.

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## **Workshop 5 - Taking your Teaching to the Next Level: Publishing Teaching Innovations in Medical Education in MedEdPORTAL and Academic Medicine**

M. Blanco, G. March Cohen, A. Fornari  
Association of American Medical Colleges

## **Rationale**

Faculty in academic medicine have the opportunity to challenge themselves to go beyond scholarly teaching (i.e., teaching that is evidence-based and innovative) to develop scholarship in teaching and learning, defined as the study of educational practices. Transforming one’s teaching activities into scholarship requires: 1) effective presentation of content, 2) evaluation of the educational activity, and 3) peer review in a public venue.

The AAMC offers two journals, which offer opportunities for medical educators to publish their innovative teaching or assessment activities. Both MedEdPORTAL publications and Academic Medicine Innovation Reports showcase curricular ideas that can influence how others teach, how students learn, how trainees become competent physicians and educators, with the ultimate goal of improving patient health.

### **Objectives**

Distinguish between descriptions and evaluations of innovations

Compare and contrast features of a MedEdPORTAL publication and an Academic Medicine Innovation Report, including criteria for publication and review processes

Devise a strategy for describing and evaluating an educational project in a way that allows it to be submitted as an Innovation Report, MedEdPORTAL publication, or both

### **Methods and Session Format**

Introduction of speakers and objectives (5 minutes)

Overview of MedEdPORTAL and Academic Medicine (10 minutes)

Activity/Discovery: Participants will work in small groups, with half of the groups receiving copies of a MedEdPORTAL publication (the educational summary report) and the other half receiving copies of an Innovation Report. Working in groups, participants will read/review their materials. (15 minutes)

Discussion within groups with prompting questions —How did the authors describe their innovations in ways that were effective, educationally sound, and reproducible? What do you like about the resource? What is useful/unique about the format? Why / how is this useful to educators? (10 minutes)

Sharing—A representative from each group will briefly present a summary of their findings about the Academic Medicine Innovation Report or the MedEdPORTAL publication. (10 minutes)

Reciprocity - All participants receive the publication they didn't review earlier and have a chance to read/skim (5 minutes)

Large group discussion— 20 minutes

Advantages of each format

How the two publication types complement each other

When might one resource be more useful/appropriate than the other?

How might you use the materials?

How might your own work fit into one format or the other (or both)?

### **Experience**

Dr. Grace Huang is the editor-in-chief of MedEdPORTAL, an associate professor of medicine at Harvard Medical School (HMS), a hospitalist and associate program director of the internal medicine residency program at Beth Israel Deaconess Medical Center.

Anne Farmakidis, MPA, is the Senior Director of Medical Education Digital Resources and Scholarship at the AAMC, oversees both

MedEdPORTAL and Academic Medicine.

Alice Fornari, EdD, RD is a MedEdPORTAL Faculty Mentor, Associate Dean for Educational Skills Development at Hofstra Northwell School of Medicine, and Assistant Vice President, Faculty Development, Northwell Health.

Maria Blanco, EdD is a MedEdPORTAL Faculty Mentor, Associate Professor in the Dept. of Psychiatry at Tufts Medical Center, and Associate Dean for Faculty Development at Tufts University School of Medicine.

Dr. Grace Huang is the editor-in-chief of MedEdPORTAL, an associate professor of medicine at Harvard Medical School (HMS), a hospitalist and associate program director of the internal medicine residency program at Beth Israel Deaconess Medical Center.

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Alice Fornari, EdD, RD is a MedEdPORTAL Faculty Mentor, Associate Dean for Educational Skills Development at Hofstra Northwell School of Medicine, and Assistant Vice President, Faculty Development, Northwell Health.

Maria Blanco, EdD is a MedEdPORTAL Faculty Mentor, Associate Professor in the Dept. of Psychiatry at Tufts Medical Center, and Associate Dean for Faculty Development at Tufts University School of Medicine.

### **References**

N/A

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## **Workshop 6 - Cultivating Joy and Meaning in Patient Care**

<sup>1</sup>N. Gabbur, <sup>2</sup>R. Blanchard, <sup>3</sup>S. Rougas, <sup>4</sup>J. Offenbacher, <sup>5</sup>T. Wijesekera

<sup>1</sup>Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, <sup>2</sup>UMMS - Baystate Health, <sup>3</sup>Alpert Medical School of Brown University, <sup>4</sup>Albert Einstein College of Medicine, <sup>5</sup>Yale School of Medicine

## **Rationale**

\*\*This is a joint proposal from the GME and MESRE sections of the NEGEA.

Physician burnout is common among health care workers, physicians and trainees. Nationally it has increased from 46% in 2011 to 54% in 2014 (1). In fact, 52% of trainees reported experiencing burnout and high levels of emotional exhaustion and depersonalization. (2) Depersonalization is common amongst trainees and they lose sight of the reasons for entering medicine. Recently the ACGME has promoted a 'Back to Bedside' initiative intended "to empower residents and fellows to develop transformative projects that combat burnout by fostering meaning in their learning environments; engaging on a deeper level with what is at the heart of medicine: their patients". (3) The ACGME received 223 submissions from across the country yet was only able to fund 30 proposals. Those selected for funding had solid schemas for evaluation. This session helps to support the development and implementation of these and other local resident and faculty initiatives by sharing a Back to Bedside proposal and then walking participants through a process of evaluating the innovation.

## **Objectives**

1. To explore the components of local innovation which fosters meaningful engagement for residents
2. To review opportunities for evaluation of these innovations
3. To reflect on participants' innovations and discuss opportunities for evaluating them

## **Methods and Session Format**

- 10 min - Introductions and Introduction of Back to Bedside initiative (NG)
- 10 min - Presentation of a "Back to Bedside" proposed project (JO)
- 10 min - Participants discuss their own curricular innovations in small groups/partners
- 10 min - Present a framework for evaluation of the Innovation (RDB)
- 15 min - In small groups or partners, participants now use evaluation framework to identify opportunities to evaluate their own innovations
- 10 min - Facilitated Large group debrief Groups Report out (SR)
- 10 min - Final questions and Future Directions (TW)

## **Experience**

Nagaraj Gabbur, MD - Ob/Gyn Program Director and former Clerkship Director with several years of teaching experience

Rebecca Blanchard, PHD - Senior Director of Educational Affairs, has presented on this and many other educational topics around the country

Steve Rougas, MD, MS, FACEP - Director of Doctoring Program has extensively published and taught on topics of education

Thilan Wijesekera, MD - Internal Medicine Fellow in Medical Education is currently pursuing further training in Medical Education

Joseph Offenbacher, MD - PGY1 Emergency Medicine, throughout medical school and now in residency has pursued teaching as a passion and has created teaching courses at SUNY Downstate Medical Center

## **References**

Please list references below.

1. Shanafelt TD et al. Mayo Clinic Proc. December 2015 p1600-1613
2. . West, Shanafelt, Kolars. Quality of life, burnout, educational debt, and medical knowledge among internal medicine residents. JAMA. 2011; 306(9):952-960.
3. . <http://www.acgme.org/Residents-and-Fellows/Back-to-Bedside> (accessed 11/5/17)

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## **Workshop 7 - Residency Wellness: Changing Culture through Experiential Learning**

M. Horlick, P. Cocks, L. Miller, B. Porter, S. Zabar  
NYU School of Medicine

## **Rationale**

There has been renewed attention on the identification and care for house staff who suffer from mental illness and burnout. However, given the continued stigma of these conditions, house staff often do not seek help in these situations. Training faculty and chief residents to identify these housestaff officers, engage them in conversation and activate resources requires targeted faculty development.

## **Objectives**

1. Describe the role of faculty and chief residents in identifying and assisting struggling trainees
2. Recognize problem behaviors in trainees and develop skills to effectively discuss their concerns with a trainee who may be impaired

3. Construct an experiential faculty development session on identifying impaired trainees to change institutional culture around the approach to burnout and mental illness

#### **Methods and Session Format**

10 min: (Patrick Cocks) The session will begin with an interactive discussion of the impaired physician and the epidemiology of substance abuse, burnout and mental illness in our profession.

10 min: (Louis Miller) Group discussion of the participants' past experience with housestaff officers who suffer from burnout or other mental illnesses and the role of faculty in identifying and starting conversations with them.

30 min: (Margaret Horlick) Participants will be led through a mock group OSTE with a case of a struggling intern including a scripted role play and a debrief of the cases.

30 min: (Barbara Porter) Group discussion among attendees of the group OSTE experience with a focus on skills to develop and lead OSTEs at their home institution

10 min: (all facilitators) Summary and Conclusion

#### **Experience**

All speakers are either program directors or associate program directors of an internal medicine residency program with interest in trainee wellness. All have led the group OSTE on the struggling learner at NYU School of Medicine for the past 3 years for both chief medical residents and faculty and all participate in the reflective practice curriculum for the NYU Internal Medicine house staff. In addition, all speakers are members of the Clinical Competency Committee of the Internal Medicine residency program at NYU.

#### **References**

Please list references below.

Dyrbye LN1, West CP, Satele D, Boone S, Tan L, Sloan J, Shanafelt TD. Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population. *Acad Med.* 2014 Mar;89(3):443-51.

Holmes EG, Connolly A, Putnam KT, Penaskovic KM, Denniston CR, Clark LH, Rubinow DR, Meltzer-Brody S. Taking Care of Our Own: A Multispecialty Study of Resident and Program Director Perspectives on Contributors to Burnout and Potential Interventions

Horlick, Margaret; Cocks, Patrick M; Altshuler, Lisa; Gillespie, Colleen; Zabar, Sondra Residency Wellness: Changing Culture Through Experiential Learning [Meeting Abstract] *Journal Of General Internal Medicine.* 2016 May; 31:S840-S840

Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C, Sen S, Mata Prevalence of Depression, Depressive Symptoms, and Suicidal Ideation Among Medical Students: A Systematic Review and Meta-Analysis. *JAMA.* 2016 Dec 6;316(21):2214-2236.

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### **Workshop 8** - Improving multiple choice examinations with item analysis

M. Green

Yale School of Medicine

#### **Rationale**

Examinations with multiple choice questions remain important assessments of medical knowledge. Item analysis statistics identify poorly performing questions and suggest underlying explanations. Revising or removing flagged questions can improve the reliability, validity, and clinical applicability of multiple choice examinations.

#### **Objectives**

Perform item analyses for multiple choice items

Interpret item analysis statistics in the context of the purpose of the examination

Remove or revise "flagged" items for future administrations

#### **Methods and Session Format**

5 minutes: Introductions

10 minutes: Mini-lecture on item analysis

15 minutes: Small groups work through item analysis problem sets, calculating and interpreting item analysis statistics from multiple choice items

10 minutes: Small groups report to larger group in discussion of problems

10 minutes: Mini-lecture on the architecture, ideal format, and technical flaws of multiple choice items

15 minutes: Small groups work on revising multiple choice questions from earlier exercise

5 minutes: Wrap up

#### **Experience**

Michael Green serves as director of student assessment at Yale School of Medicine, site leader for the AAMC core EPAs pilot, and co-course director for the Yale masters in medical education program.

Recruiting additional facilitators

## References

Please list references below.

Tavakol M, Dennick R. Post-examination interpretation of objective test data: Monitoring and improving the quality of high-stakes examinations: AMEE Guide No. 66. *Medical Teacher*. 2012;34(3):e161-e175.

Case SM, Swanson DB. *Constructing written test questions for the basic and clinical sciences*. Third edition (revised). Philadelphia, PA: National Board of Medical Examiners; 2002.

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## **Workshop 9** - Leading by Example: Educators as Listeners

<sup>1</sup>J. Beatty-Chadha, <sup>2</sup>H. Rashid, <sup>3</sup>A. Swan Sein, <sup>4</sup>W. Pluta

<sup>1</sup>Pennsylvania State University College of Medicine, <sup>2</sup>Rutgers, Robert Wood Johnson Medical School, <sup>3</sup>Columbia University College of Physicians and Surgeons, <sup>4</sup>Carle Illinois College of Medicine

### Rationale

Do we truly listen to learners when we teach? As educators, it is tempting to focus on what we say and overlook the importance of listening in instruction. However, educators must be active listeners to implement learner-centered teaching methods focused on evaluating the learner's needs and adjusting instruction accordingly. During this interactive session, participants will reflect on daily practice, identify challenges to listening when teaching, apply learner-centered teaching methods, and listen attentively to colleagues.

### Objectives

Participants will be able to:

1. Describe the connection between listening and learner-centered teaching.
2. Evaluate the use of listening strategies featured in a scenario in order to inform future practice.
3. Apply teaching methods practiced during the workshop session.

### Methods and Session Format

Introduction (10 min.): Methods for learner-centered teaching (McLean & Gibbs, 2010) and information about listening strategies will be reviewed (Boudreau et al., 2009). Guiding questions for the session will be shared, including: What strategies do you use to communicate with learners in clinical and classroom settings? How does listening relate to learner-centered teaching? What can be challenging about listening?

Jigsaw Overview (5 min.): Presenters will describe the jigsaw approach (Aronson & Patnoe, 1997). In a jigsaw, multiple topics are introduced and participants teach and learn from each other. During the session everyone will use the same scenario, but will explore one method in-depth with a group before teaching others about it. The scenario will describe a common learning situation such as an individual who has collaborated on research and is sharing findings during a presentation.

Jigsaw Step 1: Individual Planning and Group Work (20 min.): Participants will be divided and each group will be tasked to develop strategies to improve learning in the scenario through one of three methods connected to educators as listeners. Possible methods include: (a) clear and concise learning objectives as a communication tool, (b) formative assessment, and (c) effective feedback using an ask-tell-ask approach to prompt a learner's reflection. Each group will receive research-based information about their assigned method and will discuss how the methods will improve learning outcomes.

Jigsaw Step 2: Share and Learn from Others (15-20 min.): New groups will form consisting of a mix of members of the three groups. After each participant listens to ideas generated by others, the newly formed group will discuss the relationship between all methods and listening.

Debriefing & Synthesis (5-10 min.): Presenters will briefly summarize common themes from conversations and connect to research-based methods (e.g. reflective listening, SNAPPS) to underscore the importance of prioritizing what learners say. Presenters will state that all of the highlighted methods can be used to learn about learners, as well as reflect on and improve teaching.

Conclusion (5-10 min.): Participants will identify one goal for being a better listener and presenters will highlight how we listened throughout the session. For example, each facilitator will listen closely to identify themes and address points of confusion. By using the listening strategies discussed, we will learn from participants and lead by example.

### Experience

Presenters are medical education specialists from several medical schools.

### References

Please list references below.

Aronson, E., & Patnoe, S. (1997). *The jigsaw classroom: Building cooperation in the classroom* (2nd ed.). New York: Addison Wesley Longman.

Boudreau, J. D., Cassell, E., & Fuks, A. (2009). Preparing medical students to become attentive listeners. *Medical*



Teacher, 31(1), 22-29.

McLean, M., & Gibbs, T. (2010). Twelve tips to designing and implementing a learner-centred curriculum: Prevention is better than cure. *Medical Teacher*, 32(3), 225-230.

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## **Workshop 10 - Making it Memorable AND Relevant: Maximizing the Power of the Arts in Medical Education**

<sup>1</sup>C. Wu, <sup>2</sup>P. Haidet

<sup>1</sup>Boston University School of Medicine, <sup>2</sup>Pennsylvania State University College of Medicine

### **Rationale**

Arts-based teaching tends to be idiosyncratic, with success highly dependent on the personal interest and enthusiasm of the individual teacher and available local resources. In this workshop, we introduce a model for maximizing the power of the arts in medical education, based on a systematic review of the medical, educational, and arts-based literature. This model works by leveraging unique qualities of the arts to engage learners, foster construction of new meanings, and translate lessons learned to medical practice. It relies on usage of three unique sets of teaching strategies: a) engagement strategies, b) meaning-making strategies, and c) translational strategies. By intentional design and using the right strategy at the right time in the course of arts-based activity, the chances of learners changing or improving their medical practice is increased.

During this interactive session, participants will learn about the model, practice using it in the context of specific arts-based education scenarios, have the opportunity to plan ways to integrate the model in their own arts-based educational context, and receive and give feedback to others. We plan to start a community of practice with respect to using the arts in medical education, in order to foster ongoing communication between participants in the months after the workshop.

### **Objectives**

- 1) Apply a model for maximizing the use of the arts in medical education with intentional design to promote improved humanistic practice among learners across multiple ACGME domains including professionalism, interpersonal and communication skills, and patient care.
- 2) Integrate evaluation and measurement of improved patient care skills into the curricular design for arts-based medical education.

### **Methods and Session Format**

Session Agenda (75 minutes)

- 5 minutes: Examining assumptions and prior knowledge - Utilizing interactive information technology tool: Poll Everywhere questions
- 10 minutes: Introduction of the model for maximizing the power of the arts in medical education
- 25 minutes: Practice Exercises - Participants will work in small groups (of 3-4) to develop solutions to practical problems in using the arts in medical education. Solutions will be shared across small groups in a facilitated discussion.
- 25 minutes: Design and feedback - Participants will develop a mock-up of their own ideas for using the arts in medical education, and will receive feedback from other participants through a unique "gallery walk" format.
- 10 minutes: Conclusion - In addition to summarizing main points, we will propose structures for optional continued engagement with the learning community and conduct an evaluation of the workshop, again through smartphone-based polling methods

### **Experience**

Dr. Wu has led Medical Humanities courses and workshops across multiple institutions and countries, including Boston University School of Medicine, Penn State College of Medicine as a Kienle Visiting Professor, and at the Ottawa Shanghai Joint School of Medicine in Shanghai, China.

Dr. Haidet is the Director of Medical Education Research at Penn State College of Medicine, and the lead author on a systematic review about using the arts in medical education funded by the Gold Foundation (Haidet et al, *Medical Education* 2016;50:320-331).

### **References**

Haidet et al, *Medical Education* 2016;50:320-331

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## **Workshop 11 - Core EPA 'Toolkits' to Foster Successful Implementation of the EPAs in UME**

<sup>1</sup>B. Barron, <sup>1</sup>J. Amiel, <sup>2</sup>P. Cocks, <sup>3</sup>M. Green

<sup>1</sup>Columbia University College of Physicians and Surgeons, <sup>2</sup>New York University Medical School, <sup>3</sup>Yale School of Medicine

## **Rationale**

In 2014, the AAMC published a Curriculum Developers Guide and a Learner's Guide to introduce the Core Entrustable Professional Activities (EPAs) for Entering Residency. Since then, 10 pilot institutions have developed an EPA Toolkit to assist in successful implementation of a Core EPA curriculum and assessment system. The purpose of this workshop will be to introduce the EPA Toolkit and explore its applicability across institutions. In the toolkit, each EPA is represented by a one-page schematic that presents the major behavioral tasks or skills of the EPA with three stages of learner development. The schematic also includes one level of behaviors requiring correction that would need to be addressed before a learner can progress along a developmental trajectory toward entrustment decisions for patient care. The toolkit also includes the Pilot's approach to reporting just in time workplace (ad hoc) supervision/coactivity observations and institutional summative entrustment decisions, and EPA-related resources from the literature. Our goal is to share each of the 13 EPA one-page schematics and illustrate how institutions might use these for teaching and student engagement in preclinical and clinical settings, development of assessment tools, faculty (and resident) development, and entrustment decision-making in an interactive, participant-engaged session that builds upon attendee perspectives and experiences.

## **Objectives**

- Describe key elements of the Core EPA toolkits
- Provide examples of how the toolkits can be used for student engagement and assessment, faculty development, and within a system of entrustment decision-making
- Discuss opportunities for EPA implementation within unique institutional contexts

## **Methods and Session Format**

20 minutes: Overview:

- Introduction and Purpose
- Review attendees stage of implementation of EPAs (pre-contemplation, contemplation, preparation, action, maintenance, relapse)
- Core EPA Pilot Lessons Learned
- EPA-specific "toolkits"

5 minutes: Setting the task, and forming groups.

Attendees will be divided into three groups according to their preferred interests: (1) curriculum and assessment, (2) faculty (and resident) development, and (3) entrustment decision-making. The 13 one-page schematics developed by Core EPA Pilot members will be distributed.

35 minutes: Groups work on assigned task.

Each group will choose 1-3 of the 13 Core EPAs and review the one-page schematics. They will consider their EPA(s) from the perspective of their group (curriculum and assessment, resident/faculty development, or entrustment), and focus on opportunities and challenges posed by the construct. They will have 30 minutes to discuss how they could use the schematic(s) within their unique institutional contexts, and another 5 minutes to enter brief 4-5 word responses summarizing the discussion into a shared Google document.

15-30 minutes: At the 60 minute point of the session, the whole group will re-convene, and we will use the remaining time for report out of comments in the Google Doc about possible implementation strategies. These will be organized in categories to facilitate and abbreviate the discussion: implementation for curriculum and assessment, faculty/resident development, and entrustment decision-making.

## **Experience**

The speakers represent 3 schools that are members of the AAMC pilot for implementation of a Core EPA curriculum and assessment system and were involved in the publication of the toolkits.

## **References**

1. Acad Med articles a)team leads b) entrustment and c) faculty devpt
2. Core EPA Curriculum developers guide weblink
3. Pubs and presentations weblink that has the core EPA toolkits

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## **Workshop 12 - Career Advising in a Changing Medical Education Landscape**

<sup>1</sup>L. Thomas, <sup>2</sup>G. Farina, <sup>3</sup>K. Jubanyik, <sup>1</sup>K. Pham, <sup>2</sup>R. Kanner, <sup>1</sup>R. Zucconi

<sup>1</sup>Frank H. Netter MD School of Medicine at Quinnipiac University, <sup>2</sup>Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, <sup>3</sup>Yale School of Medicine

## **Rationale**

Seventeen new medical schools have been established since 2006 (1), each striving to direct prospective students into the residency pipeline with limited resources or transparency into the selection process employed by residency

programs. The nuances of 4th year scheduling, number of programs to which to apply, early match, couples match, and other residency considerations are just the tip of the iceberg of uncertainties in career advising, particularly when coupled with evolving medical curricula, such as delaying Step 1 requirements. In addition, the implementation of the Standardized Video Interview and the new MSPE format have created increasing variables to an already complex decision-making process. While the National Residency Matching Program reports useful data in the Program Director's Survey (2) and its other publications, students often have to seek mentors for program specific information (3). It is critical that advisors gain effective strategies to help students navigate the growing complexities of the residency application process.

### **Objectives**

In this case-based workshop, career advisors and student affairs deans across the region will lead a discussion on the advising challenges that have emerged from the current medical education landscape. Participants will consider the impact of the new MSPE guidelines' call for inclusion of direct assessments of professionalism, the challenges of advising students whose academic performance is mismatched with their career choice, and fourth year planning that takes into account delayed USMLE step 1 scores. Through theoretical student examples of each scenario, participants will work towards the goal of optimizing a successful residency match for their students.

### **Learning objectives:**

- Discuss three emerging challenges in the residency application process for Career Advisors and students at new medical schools and those undergoing curricular reform
- Identify strategic Career Advising practices to employ when challenging situations arise during the residency application process

### **Methods and Session Format**

10 minutes - Introduction of Presenters: Netter, Hofstra, Yale

o Rationale for session

o Table Icebreaker

3 cases will be distributed among the participants for simultaneous discussion at their tables and then reconvene for group debrief.

CASE 1: The Specialty / Student Mismatch - Guiding students with a "Parallel Plan"

CASE 2: Advising students in fourth year planning with delayed step 1 timing

CASE 3: Addressing Professionalism

20 minutes - Small group brainstorming activity on how to help the theoretical student described in the case

(5 minutes - Case introductions; 15 minutes - each group will develop best practice based on consensus for these students)

30 minutes - Reconvene for large group debrief of each case (10 minutes per case)

10 minutes - Summation

### **Experience**

Listy Thomas and Rebecca Zucconi are career advisor at the new Netter School of Medicine which matched and graduated its inaugural class in 2017. Kim Pham is the Associate Dean for Student Affairs at the Netter School of Medicine. Karen Jubanyik is a career advisor at Yale School of Medicine. Gino Farina is the Assistant Dean for Clinical Preparation for Residency at the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell. Ron Kanner is the Associate Dean for Career Advisement at Hofstra/Northwell.

### **References**

1. Iglehart JK. The residency mismatch. *N Engl J Med* 2013; 369: 297-9.
2. National Resident Matching Program's Program Director Survey. 2016 June. <http://www.nrmp.org/wp-content/uploads/2016/09/NRMP-2016-Program-Director-Survey.pdf>
3. Aagaard, Eva. Medical student advising: Informed individualized advice is the key. *Journal of graduate medical education* 7.3 (2015): 486-488.

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### **Workshop 13 - Creating and Debriefing Simulations that Link the Basic Sciences, Clinical Sciences, and Actual Practice**

M. Cassara, J. Willey, S. Ginzburg, J. Brenner, T. Kwiatkowski, W. Rennie  
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

### **Rationale**

Many medical students do not immediately grasp the relevance and applicability of the basic sciences to the practice of medicine. At the Zucker School of Medicine at Hofstra/Northwell (Zucker SOM), we believe that establishing this link between the basic sciences, clinical sciences, and actual practice early in undergraduate medical education (UME) is essential. Our students engage in multiple technology-enhanced mannequin simulations integrated throughout their

first and second years. These simulations provide clinical correlations and “real world” contexts that illustrate the applicability of scientific knowledge to critical thinking, diagnostic reasoning, therapeutic decision making, and other physician responsibilities (Ginzburg, et al. [2017]). The goal of this workshop is to share the Zucker SOM experience in creating these simulation experiences.

### **Objectives**

At the completion of this workshop, participants will be able to:

1. Observe how technology-enhanced mannequin simulations may be used to show the relevance and correlation of the basic sciences to the clinical sciences and actual practice
2. Develop simulations that correlate the basic sciences with the clinical sciences and actual practice
3. Propose strategies for debriefing basic science objectives following technology-enhanced mannequin simulations

### **Methods and Session Format**

Creating Simulation Curricula (10 minutes). Faculty poll participants to gauge familiarity with simulation, provide an overview of simulation modalities and debriefing strategies, and review the Khamis, et al. (2016) model of simulation-based curriculum development.

Simulation/Debriefing Examples (10 minutes). Faculty provide examples of simulations from the Zucker SOM. Participants watch videos of debriefings that demonstrate how these simulations provide linkage between the basic sciences, clinical sciences and actual practice.

Creating Simulation Curricula (15 minutes). Participants work in small groups and choose subject matter in the basic sciences (e.g. anatomy, biochemistry, etc.). Participants then formulate basic science objectives, and design technology-enhanced mannequin simulations linking and showing relevance of the basic science content with the clinical sciences/actual practice.

Small Group Report Out (20 minutes). Participants’ small groups share their simulation designs, describing links made between the basic sciences, clinical sciences, and actual practice.

Debriefing Tactics and Styles (15 minutes). Participants and faculty brainstorm optimal strategies for debriefing basic science objectives as if the simulations designed by each small group were implemented.

Final Thoughts (5 minutes).

### **Experience**

Michael Cassara, DO, MEd is Associate Professor of Emergency Medicine and has 18 years experience in UME, GME, debriefing, simulation, and case development.

Joanne M. Willey, PhD is the Chair of the Science Education Department with extensive experience in UME, course direction, debriefing, and case development.

Samara Ginzburg, MD is the Associate Dean for Case-Based Learning, with 13 years experience in UME, GME, debriefing, and case development.

Judith M. Brenner, MD is the Associate Dean for Curricular Integration and Assessment and has worked in UME/GME since 1998; areas of interest include curricular design, implementation, and assessment/evaluation.

Thomas Kwiatkowski, MD is the Assistant Dean for Education/Simulation and has extensive experience in UME, GME, course direction, debriefing, simulation, and case development.

William Rennie, MD is Associate Professor of Emergency Medicine and Science Education and has extensive experience in UME, GME, course direction, debriefing, simulation, and case development.

### **References**

Ginzburg, S. B., Brenner, J., Cassara, M., Kwiatkowski, T., & Willey, J. M. (2017). Contextualizing the relevance of basic sciences: small-group simulation with debrief for first-and second-year medical students in an integrated curriculum. *Advances in Medical Education and Practice*, 8, 79.

Khamis, N. N., Satava, R. M., Alnassar, S. A., & Kern, D. E. (2016). A stepwise model for simulation-based curriculum development for clinical skills, a modification of the six-step approach. *Surgical Endoscopy*, 30(1), 279-287.

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**Workshop 14 - Ending on a High Note: Application of the 4 Component Instructional Design methodology to UME curriculum development for patient documentation in the Core EPA era**

<sup>1</sup>T. Cassese, <sup>2</sup>R. Ovitsh, <sup>1</sup>J. Rockfeld, <sup>3</sup>D. Gowda

<sup>1</sup>Frank H. Netter MD School of Medicine at Quinnipiac University, <sup>2</sup>SUNY Downstate College of Medicine, <sup>3</sup>Columbia University College of Physicians and Surgeons

### **Rationale**

The 13 Core EPAs constitute a competency-based medical education model focused on activities an intern should be able to perform without supervision on day one of residency. Published scholarship on EPAs has largely focused on learner assessment. EPA-driven curriculum development has also been encouraged by thought leaders, yet is absent from the literature (1).

Core EPA 5 relates to documentation in the patient record. This activity, which requires skills of clinical reasoning, time management, navigation of cumbersome EMRs, and legal/billing considerations, is a complex skill. Research shows that training in medical documentation is often informal and unstructured and that trainee documentation is infrequently evaluated (2,3).

The principles of instructional design, particularly 4-Component Instructional Design (4-C/ID), may be of value for educators developing curricula focused on complex skills, such as medical documentation. 4-C/ID is an instructional design approach supported by educational theory. The model encourages 'whole-task' learning, whereby learners engage in the complete (unfragmented) activity typically performed by a practicing professional at the time the task is being learned. This design element leverages adult learning theory and facilitates skill application within clinical contexts, while also carefully attending to learner cognitive load (4).

Workshop participants will learn about the theoretical constructs of the 4-C/ID model and apply them to designing a longitudinal medical documentation curriculum. Participants will leave the workshop with an understanding of a theory-based curricular design approach that may be applied to teaching and assessing medical documentation as well as other Core EPAs.

### **Objectives**

1. Describe whole-task instructional design principles and evidence supporting their use in complex task education.
2. Apply whole-task design principles to development of a longitudinal UME curriculum on medical documentation.
3. Evaluate the approach of whole-task instructional design to curriculum development for other Core EPAs.

### **Methods and Session Format**

Part-1: Introduction (20-mins)

- Participants think/pair/share on the current state of medical documentation training across the UME spectrum.
- Facilitators introduce whole-task learning, cognitive load theory, and 4-C/ID and provide a brief overview of EPA five, documentation of a clinical encounter and current barriers to effective education in this domain.

Part-2: Break-out (40-mins)

- Participants form small groups to apply 4-C/ID principles to a longitudinal curriculum addressing medical student documentation skills. This learning task will make use of 4-C/ID methodologies to aid participants in learning the model.

Part-3: Report-out/Wrap-up (20-mins)

- Groups report progress
- Large-group discussion on whole task learning and documentation.

### **Experience**

Todd Cassese, MD/FACP: President of DOCS and directs the clinical skills course at Netter SOM and has presented workshops nationally and internationally on the 4-C/ID model.

Jennifer Rockfeld, MD/FACP: Assistant director of clinical skills at Netter SOM and directs faculty development for the course. She has prior experience working with EPAs at the GME level.

Robin Ovitsh, MD: Assistant Dean for clinical competencies at SUNY Downstate who oversaw a major curricular reform there. She has presented numerous regional and national workshops on clinical skills and curriculum integration.

Deepthiman Gowda, MD/MPH: Course director for clinical skills and narrative medicine at Columbia University and has presented numerous regional and national workshops on clinical skills.

### **References**

- 1) Holmboe, E, Sherbino J, Englander R, Snell L, Frank R. (2017). A Call to Action: The Controversy of and rationale for competency-based medical education. *Medical Teacher*. 39:6. 574-581.
- 2) Friedman E, Sainte M, Fallar R. (2010). Taking Note of the Perceived Value and Impact of Medical Student Chart Documentation on Education and Patient Care. *Academic Medicine*. 85:9 1440-1444.
- 3) Ratcliffe TA, Hanson JL, Hemmer PA, Hauer KE, Papp KK, Denton GD. (2013). The required written history and physical is alive, but not entirely well, in internal medicine clerkships. *Teaching and Learning in Medicine*. 25 (1): 10 - 14.
- 4) Dolmans, D. (2015). When I say... whole-task curricula. *Medical education*, 49(5), 457-458.

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## **Workshop 15** - Expanding Faculty Development Programs by Nurturing Communities of Practice

<sup>1</sup>A. Fornari, <sup>2</sup>M. Blanco, <sup>3</sup>J. Shapiro, <sup>4</sup>R. Blanchard

<sup>1</sup>Donald and Barbara Zucker School of Medicine At Hofstra/Northwell, <sup>2</sup>Tufts University School of Medicine, <sup>3</sup>University of Rochester School of Medicine, <sup>4</sup>University of Massachusetts School of Medicine

### **Rationale**

The current field of faculty development is endorsing a shift from individual learning to group learning, including the

cultivation of communities of practices (CoPs) (Steinert, 2010; O'Sullivan and Irby, 2011; Schreurs et al. 2015). Key features of communities of practices are joint efforts, mutual engagement, relationships, networking, teamwork, coaching and shared repertoire. Members are brought together by joining in common activities and by 'what they have learned through their mutual engagement in these activities' (Wenger, 1998). Building on self-determination theory and other motivational theories (Ryan and Deci, 2000), faculty developers can create learning environments that support internal motivation, competence, autonomy and the need for relatedness through CoPs. Examples of CoPs from four different academic institutions will be discussed to help participants understand the core principles of CoPs for faculty development.

### **Objectives**

By the end of the workshop, participants will:

1. Identify the core components of a CoP model for faculty development
2. Compare the CoP model with more traditional faculty development models
3. Apply self-determination and self-regulated learning theories to promote the development and sustainability of CoPs at their institutions.

### **Methods and Session Format**

#### Session Outline

1. Participants Introductions (5 minutes)

Participants will be asked demographic questions and whether they have been involved in CoPs.

2. Overview of Workshop and Key Theoretical Concepts (15 minutes)

Presenters will introduce the workshop, and provide an overview of existing frameworks for faculty development, including a review of the key features of CoPs. The self-determination theory and the importance of self-regulated learning behaviors will be reviewed as theoretical frameworks that support the development and sustainability of CoPs.

3. Think-Pair Activity (10 minutes)

Participants will think and pair with a peer; each will identify a current FD effort at their institutions that could be nurtured to become a CoP.

4. Pair-Share with Table Activity (10 minutes)

Participants will share their selected FD activity within their tables.

5. Large Group Participants Activity (20 minutes)

Each table will report the key issues that arose from their pair-share activity together with examples they selected from their table discussion.

6. Group Discussion on Benefits, Pitfalls, and Sustainability of COPs (15 minutes)

Presenters will invite participants to discuss benefits, pitfalls, sustainability of COPs while making connections to the proposed theoretical frameworks.

### **Experience**

Alice Fornari, EdD is Associate Dean, Educational Skills Development at Zucker SOM at Hofstra/Northwell and AVP of Faculty Development Northwell Health

Maria Alejandra Blanco, EdD is responsible for designing, implementing and evaluating faculty development programs, including resident- and student-as-teachers programs. She is dedicated to scholarly activities and educational scholarship.

Janine R. Shapiro, M.D. Associate Dean for Faculty Development, Medical Director for Continuing Medical Education, Professor of Anesthesiology and Perioperative Medicine

Rebecca Blanchard, PhD. Senior Director of Educational Affairs and Assistant Dean for Education, Baystate Health

### **References**

1. Yvonne Steinert (2010) Faculty development: from workshops to communities of practice, *Medical Teacher*, 32:5, 425-428, DOI: 10.3109/01421591003677897
2. Wenger, Etienne (1998) *Communities of practice: learning, meaning, and identity*. Cambridge University Press.
3. Ryan RM, Deci EL(2000). Intrinsic and extrinsic motivation: classic definitions and new directions. *Contemporary Educational Psychology*, 25:54-67.

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### **Workshop 16 - Writing a successful grant proposal: perspectives from the NEGEA collaborative grant program**

<sup>1</sup>S.Rougas, <sup>2</sup>K. Huggett, <sup>3</sup>A. Swan Sein

<sup>1</sup>Alpert Medical School of Brown University, <sup>2</sup>The University of Vermont Larner College of Medicine, <sup>3</sup>Columbia University College of Physicians and Surgeons

### **Rationale**

Busy educators often face several barriers when attempting to develop and execute sound educational research(1).

Many of these barriers have been explored in the literature including a lack of expertise, time, and money(2). Recognizing the importance of providing funding for researchers to implement necessary research projects, the AAMC and the four regional groups of the Group on Educational Affairs all provide funding for education research through an annual grant program. These funds are essential as they provide seed money to initiate research projects that seek to answer key educational questions and foster collaboration across individuals and institutions within a region. A key step in defining high quality education research is improving the quality of proposals submitted to these funding pipelines and providing researchers with ample opportunities to seek guidance and mentorship(3). Given the recent focus on increasing the quality of education research being conducted and submitted within the US(4), this workshop is part of a larger national push to enhance the quality of education research projects being submitted to the NEGEA annual grant program(5).

### **Objectives**

At the conclusion of this workshop, participants will be able to:

1. Describe the requirements of the NEGEA grant program
2. Identify the characteristics of a competitive grant proposal
3. Discuss the common pitfalls in grant writing
4. Apply the processes described to begin the development of a grant submission

### **Methods and Session Format**

Participants will be asked at the beginning of the workshop to identify a possible project that they would want to submit to the upcoming grant cycle. The workshop will then start with a brief introduction to the NEGEA grant program (5 min). This will include an overview of the intent of the program as well as a history of prior projects that have been funded. Following the introduction, we will introduce a panel of prior grant recipients and reviewers who will share their experience including pitfalls and recommendations (15 min). Next, participants will be broken into small groups and given an example of a grant proposal to review using the review criteria provided to reviewers (15 min). The groups will then report out to the large group (10 min). Next, session facilitators will walk through each component of the call for proposals and provide specific feedback on each section based on reviews from prior years (10 min). Following this, participants will break into small groups to discuss their individual ideas (15 min). We will specifically focus on problem statement, methodology, and evaluation/outcomes. The session will close with a final Q&A and review of some of the projects discussed in the small groups (5 min). Participants will be provided with a list of resources for grant writing upon completion of the workshop.

### **Experience**

Dr. Rougas is the NEGEA MESRE representative and chairs the NEGEA grant program

Dr. Swan Sein is the former NEGEA MESRE representative

Dr. Huggett has served as a grant reviewer and a member of the MESRE national steering committee

### **References**

1. Cook DA, Beckman TJ, Bordage G. Quality of reporting of experimental studies in medical education: a systematic review. *Med Educ* 2007;41(8):737-745.
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4. Artino AR Jr, West DC, Gusic ME. Foreword: The more things change, the more they stay the same. *Acad Med* 2015;90(11 Suppl):Si-Siii.
5. Blanco MA, Gruppen LD, Artino AR Jr, Uijtdehaage S, Szauter K, Durning SJ. How to write an educational research grant: AMEE Guide No. 101. *Med Teach*. 2015;2:1-10.

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## **Workshop 17 - Never Too Busy: Micro-Teaching in 30 Seconds and 2 Minutes**

F. Wang

Perelman School of Medicine at the University of Pennsylvania

### **Rationale**

With patient censuses rising and the increasing complexity of patients, teaching often takes a backseat to patient care. Medical educators must be very conscious of discrete time segments to avoid teaching for too long and interfering with patient care workflow. This workshop will help participants master micro-teaching by using specific question words or types of patient-centered demonstrations to keep teaching moments contained as 30 seconds or 2 minutes in small groups with feedback. Then two health technology ready-to-use projects related to microteaching will be presented for rapid utilization.

## Objectives

Participants will:

- 1) Identify time pressures of teaching on rounds or in a busy clinic
- 2) Categorize question words and demonstration teaching moments by time length
- 3) Simulate and evaluate teaching sessions based on time length

## Methods and Session Format

Session Agenda (for proposed 75 minute workshop):

5 minutes: Introduction to Topic

5 minutes: Large group brainstorm session: 1) challenges to teaching on rounds or a busy clinic and 2) examples of discrete teaching activities/segments during the day

5 minutes: Hand out and explain graphic of using Question Words versus Patient Centered Demonstration categories to define teaching length

10 minutes: Form small groups of 2-3 people. Using a fake patient list (including HPIs), each group makes two 30 second and two 2 minute teaching topics and scripts. They will use the Question Words section of the graphic (What/Which=30 seconds, Why=2 minutes, How=5 minutes) to create their topics.

15 minutes: From new small groups of 3 different people. In each round, the first person delivers a teaching topic but doesn't reveal whether it is a 30 second topic or a 2 minute topic. Another person is the student and interacts with the teacher. The third person is a timekeeper. After each teaching topic is delivered, questions are presented on the Powerpoint of "How long did you think you taught for?" and "Were you tempted to teach everything about the topic?" and "If you went on for too long, how would you have changed your initial question?"

5 minutes: Large group feedback about their answers to these reflection questions and what they were surprised by.

10 minutes: Attempt same exercise having now shared group feedback

5 minutes: Large group feedback session again re: improvements made after discussing skills

5 minutes: Demonstration of "Penn Pearls" project (online mobile-friendly website created as an organized system of pearls of topics that can be delivered in 30 second and 2 minute sessions) and the "100 Most Pimpable Questions on Internal Medicine Wards" project (list of frequently asked questions by attendings to students and demonstrating how this works with giving the students your script for asking questions")

5 minutes: Fill out evaluations

5 minutes: Buffer time

## Experience

Flint Wang, MD is an Assistant Professor of Clinical Medicine at the University of Pennsylvania in the Section of Hospital Medicine and is the Co-Leader of the Organization/Efficiency Division of the Clinical Coaching Committee with an interest in remediating learners and microteaching.

## References

Wang FY, Kogan JR. "We're NOT Too Busy": Teaching with Time Constraints on Rounds. Academic Medicine. In-press. Accepted April 2017.

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## **Workshop 18** - Motivating a Shift in Clinical Culture with a 4-Year Longitudinal 'Addressing Substance Use'

Curriculum: Fostering an Interdisciplinary, Inter-professional Approach in Empowering the Next Generation of Clinicians

<sup>1</sup>S. Kapoor, <sup>1</sup>L. Block, <sup>1</sup>J. Morgenstern, <sup>1</sup>N. Kwon, <sup>2</sup>M. O'Grady, <sup>1</sup>E. Pearlman, <sup>1</sup>M. Pawelczak, <sup>1</sup>T. Ahuja, <sup>1</sup>J. Weiner, <sup>1</sup>J. Brenner, <sup>1</sup>A. Fornari, <sup>1</sup>J. Morley, <sup>1</sup>A. Soman, <sup>1</sup>B. Goldman, <sup>1</sup>D. Coletti, <sup>1</sup>J. Conigliaro

<sup>1</sup>Donald and Barbara Zucker School of Medicine At Hofstra/Northwell, <sup>2</sup>National Center on Addiction and Substance Abuse

## Rationale

We are amidst of a large-scale epidemic that impacts our patient population and communities with no sense of discrimination or short-term relief. The misuse and abuse of alcohol, illicit and prescribed opioids has motivated important dialogue throughout the Nation, throughout the State, in our homes, our workplaces, within our health system and medical school. Transparently inventorying health professional training, it is apparent that little time is dedicated on skills necessary for screening, intervening, and treating patients for alcohol and substance misuse issues, and given the enormity of the social and financial costs associated with substance use disorders, it is imperative that the next generation of medical professionals develop this basic competency. We are at a crossroads where we can effectively diversify the current educational infrastructure to improve knowledge, competency and comfort in response to the evident demands and needs of our communities and patients.

## Objectives

This session will highlight lessons learned while iteratively infusing an 'Addressing Substance Use' curriculum into an



allopathic medical school. To facilitate participants' engagement, commitment and confidence in spearheading similar initiatives, thoughtful discussions will enable attendees to:

- a) Organize focused curricular enhancements for students and faculty to enhance awareness and comfort in utilizing communication skills in addressing substance use
- b) Identify opportunities to incorporate an interdisciplinary inter-professional team-based approach for development and delivery of educational experiences
- c) Formulate processes to evaluate knowledge, attitudes, and skills utilizing qualitative and quantitative tools

#### **Methods and Session Format**

5mins: Session overview (introductions; brief summary of workshop agenda and objectives)

10mins: Review prevalent gaps in clinical care and highlighting practical role of focused curricular efforts

- Interactive poll

- Think-pair-share

15mins: Describe 4-year longitudinal 'Addressing Substance Use' curriculum: iterative development, implementation, and evaluation

10mins: Small group activity: Formulate draft framework of curricular enhancements for your institution

10mins: Interactive learner-driven debrief/discussion: elements necessary for successful implementation and sustainability of curricular efforts

10mins: Small group activity: define evaluation and assessment opportunities

10mins: Group Discussion (including Q&A, comments, concerns)

5mins: Session Evaluation

#### **Experience**

The team involved has received regional and national recognition for successfully incorporating interdisciplinary, inter-professional team-based approaches to universally address substance use as part of usual clinical care, and in doing so, building bridges into the educational setting to empower the next generation of healthcare professionals to confidently challenge clinical/cultural norms.

#### **References**

Please list references below.

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Rasyidi E, Wilkins JN, Danovitch I. Training the next generation of providers in addiction medicine. *Psychiatr Clin North Am*. 2012;35(2):461-480.

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### **Workshop 19 - How to Say What Everyone Else is Thinking**

<sup>1</sup>M. Rosenblum, <sup>1</sup>G. Luciano, <sup>2</sup>J. Jacob, <sup>3</sup>M. Picchioni, <sup>3</sup>R. Blanchard

<sup>1</sup>Mercy Medical Center, <sup>2</sup>Albany Medical Center, <sup>3</sup>Baystate Health

#### **Rationale**

Giving clinical feedback to learners is difficult for many medical educators. Providing sensitive feedback is far more challenging, and the impact of this feedback and its delivery can have long-lasting effects on learners' careers and how others perceive them. Educators are in a unique position to help shape all aspects of their learners' professional identity, including non-clinical aspects. This workshop tackles the challenges of delivering sensitive feedback in a timely and effective manner.

#### **Objectives**

Describe the importance of delivering sensitive feedback for learner development and success.

Compare and contrast strategies for effectively delivering sensitive feedback.

Discuss and practice the steps for candidly delivering feedback of a sensitive nature.

#### **Methods and Session Format**

Timeline:

5 minutes: Introduction of speakers and topic

15 minutes: Discussion of importance of delivering sensitive feedback - to include an overview of the Johari window as a framework for delivering feedback and the consequences to the learner if feedback is not delivered or not delivered effectively.

5 minutes: Discussion and modeling of the essential steps of delivering sensitive feedback adapted from "How to Say

Anything to Anyone" by Shari Harley.

30 minutes: Facilitated small group learning activity.

15 minutes: Discussion of troubleshooting the common challenges associated with giving and receiving sensitive feedback.

5 minutes: Wrap-up and conclusion.

Essential steps for delivering sensitive feedback will be reviewed and modeled with substantial time devoted to group reflection and discussion. Facilitated breakout groups will support faculty and coordinators in GME and UME to become more comfortable with discussing taboo topics and methods for delivering sensitive feedback effectively. Participants will have the opportunity to reflect on challenges they've faced during past experiences, plan strategically for more candid and aligned future discussions and give feedback to one another for more effective open conversations.

### **Experience**

Michael Rosenblum, MD is Professor of Medicine at Frank H. Netter MD SOM and the Internal Medicine (IM) Residency Program Director at Mercy Medical Center who has presented >50 workshops at regional, national and international meetings.

Gina Luciano, MD is Associate Professor at Frank H. Netter MD SOM, Harvard-Macy Scholar and Associate IM Residency Director at Mercy Medical Center who has extensive faculty development and workshop presentation experience (>20).

Jacky Jacob, MD is Assistant Professor at Albany Medical College where she is core hospitalist faculty and is building her teaching portfolio.

Michael Picchioni, MD is Assistant Professor at the University of Massachusetts Medical School (UMMS)-Baystate, IM Clerkship Director, and Associate IM Residency Director for 18 years at Baystate Medical Center with numerous workshop presentations.

Rebecca Blanchard, PhD is an Assistant Professor, Director of Medical Education and Research at UMMS-Baystate and has presented numerous educational workshops regionally and nationally.

### **References**

"How to Say Anything to Anyone" by Shari Harley

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Publisher:

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01/08/2013

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## **Workshop 20** - When Student Words Hurt: Helping Faculty Respond and Move Forward Constructively

<sup>1</sup>H. Chen, <sup>2</sup>S. Oza, <sup>3</sup>D. Torre

<sup>1</sup>Georgetown University School of Medicine, <sup>2</sup>Albert Einstein College of Medicine, <sup>3</sup>Uniformed Services University of the Health Sciences

### **Rationale**

Student evaluation of curricular experiences and instructors is regularly employed in medical education to provide feedback about the quality of the curriculum and the instruction. Typically, these evaluations are anonymous and include both numerical ratings and narrative comments. The literature suggests that faculty interpret student feedback not just as a judgement on their teaching ability but on their person/professional identity. In this context, positive evaluations can boost faculty morale and engender pride while negative evaluations can result in disappointment, hurt, and shame (1). The cultural trends towards deindividuation and moral disengagement in online commentary and a student-as-consumer model of education, provide a backdrop for some evaluations that are not just negative but unprofessional - containing cruel and abusive statements students would never say to a faculty's face. Rather than providing an impetus for change, these comments demoralize and demotivate faculty and can result in faculty withdrawal from their commitment to teaching or teaching excellence (2). This workshop invites participants to wrestle with this little discussed phenomena, consider strategies for faculty reframing and development, and share potential solutions for ameliorating counterproductive effects of student evaluations.

### **Objectives**

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

- Explain the issues with unprofessional faculty evaluations and its counterproductive effects on quality improvement
- Unpack unprofessional narratives to understand student frustrations and reveal underlying opportunities for

improvement

- Describe the seven steps faculty can take to “soothe the sting” from unprofessional evaluations (3)
- Share potential strategies institutions can take to ameliorate the impact of unprofessional evaluations

### **Methods and Session Format**

15 min Large group

- Welcome and introductions

• Overview with brief literature review regarding issues with negative evaluations in general and with unprofessional evaluations specifically

15 min Small group

- Participants provided with case scenarios with negative evaluations containing unprofessional narrative comments
- Each small group works through scenarios and narrative comments to highlight underlying student concerns and opportunities for improvement

15 min Large group

- Small groups report out with summary and discussion of key points
- Brief review of the 7-step process for responding to negative and unprofessional evaluation comments

20 min Small group

- Small group discussion of the following questions and sharing of best practices:

- How can we help faculty respond constructively to negative comments? Should faculty be developed in the 7-step process?

- What else can institutions do to support faculty self-esteem and self-efficacy for change in the face of negative evaluations?

- How can we prevent unprofessional comments (e.g. student development, expectations, etc.)?

- Should institutions monitor for and filter out unprofessional comments?

10 min Large group

- Small group report out and discussion of key recommendations
- Summary and wrap up

### **Experience**

Dr. Chen has a PhD in education, oversees evaluations for the school of medicine, and has experience in faculty development.

Dr. Oza has a MA in education, directs and oversees evaluation of the clinical skills course and provides faculty development.

Dr. Torre has PhD in education and has significant experience with evaluation and faculty development.

### **References**

1. Arthur L. From performativity to professionalism: lecturers' responses to student feedback. *Teaching in Higher Education*. 2009;14(4):441-454.
2. Lindahl MW, Unger ML. Cruelty in student teaching evaluations. *College Training*. 2010;58:71-76.
3. Artze-Vega I. Cruel student comments: seven ways to soothe the sting. [Internet blog post] *Faculty Focus | Higher Ed Teaching & Learning*. 8 December 2014. [cited 6 November 2017] Available from: <https://www.facultyfocus.com/articles/faculty-evaluation/cruel-student-comments-seven-ways-soothe-sting/>

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## **Workshop 21 - Direct Observation of Learners: A Guide for Faculty and Program Leaders Across the Continuum**

A. Fornari, E. Pearlman, J. Young

Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

### **Rationale**

Direct observation of clinical skills in authentic settings is an important strategy for facilitating formative feedback and for assessing the competency of learners at all levels across the continuum (UME, GME, CPD). A core principle of competency-based education is to assure that learners attain specific observable behaviors that integrate knowledge, skills and attitudes - a premise which has been extended to the assessment of entrustable professional activities (EPAs) [1]. Although important in competency-based medical education models and required by some accrediting agencies (e.g., LCME and ACGME), the use of direct observation is infrequent [2, 3]. Programs continue to be challenged to implement sufficient, high-quality and reliable direct observations for learner assessments. This includes the need for development of appropriate observational skills in individual faculty observers and evidence-based design and implementation skills in educational program leaders. This workshop is intended to provide individual faculty observers and educational program leaders with evidence-based guidance and skills to design, implement and perform effective learner assessments using the method of direct observation.

### **Objectives**

By the end of this session, participants will be able to:

1. Describe the role of direct observation in competency-based medical education across the continuum (UME, GME, CPD).
2. Summarize evidence-based best practices for direct observation as an assessment strategy.
3. Design direct observation strategies for their home institution/context.
4. Discuss strategies for overcoming common barriers.

#### **Methods and Session Format**

1. Presentation and group dialogue (15 minutes):
  - a. Review rationale and background information regarding direct observation
  - b. Relate to conference themes: curiosity, community, commitment, collaboration
  - c. Review of evidence-based guidelines for faculty and program leaders
2. Skill building - Tool Design (20 minutes):
  - a. Watch a video of an encounter
  - b. Discuss in small groups and/or Pair-share to design a tool / identify critical elements
  - c. Discuss as large group
3. Skill building - Individual Faculty Observation and Feedback (20 minutes):
  - a. Watch a video of an encounter
  - b. Assess encounter using the tool provided
  - c. Discuss in small groups and/or Pair-share to compare observations
  - d. Discuss in large group
4. Summary by presenters and large group debrief (15 minutes)

#### **Experience**

1. Alice Fornari, EdD is Associate Dean, Educational Skills Development at Zucker SOM at Hofstra/Northwell and AVP of Faculty Development Northwell Health
2. John Q. Young, MD, MPP, PhD is Professor and Vice Chair for Education and Director, Residency Training in the Department of Psychiatry at the Zucker School of Medicine & The Zucker Hillside Hospital
3. R. Ellen Pearlman, MD, FACH is Associate Dean for Advanced Clinical Learning at Zucker SOM at Hofstra/Northwell

#### **References**

1. Englander R, Aschenbrenner CA, Call SA, et al. Core entrustable professional activities for entering residencies: Faculty and learners' guide. MedEdPortal 2014.
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#### **Workshop 22 - Creating a Longitudinal Health Equity & Social Justice Curriculum: An Interactive Workshop for Medical Educators**

M. Ayyala, M. Dalla Piazza, M. Padilla-Register, M. Soto-Greene  
Rutgers New Jersey Medical School

#### **Rationale**

Teaching health equity topics in medical education has become imperative in today's healthcare landscape. Significant disparities in disease burden and health outcomes persist across many patient populations, largely shaped by cross-cultural barriers, bias and social determinants. In addition, recent healthcare reform efforts have charged healthcare organizations with mitigating bias and addressing health disparities to achieve the best possible population health outcomes. In this setting, the Association of American Medical Colleges (AAMC) through its Diversity Policy and Programs (DPP) has developed tools to assist medical schools with LCME standards, including the Tool for Assessing Cultural Competence Training (TACCT).

Because of a recent curricular restructuring, our medical school had an opportunity to further develop a longitudinal, fully-integrated health equity curriculum across the 4 years of medical school focused on reflection and self-empowerment which addresses objectives in all 6 TACCT domains (Health disparities, Community Strategies, Bias/stereotyping, Cross-cultural communication, Interpreters, Self-reflection/Culture of medicine). We utilized the TACCT to perform a needs assessment, engage students in curricular topic design, and mobilize key institutional stakeholders. This workshop will focus on lessons learned, including the importance of engaging UME, GME and CME stakeholders. The overarching goal will be to assist other programs with implementing similar curricula at their home institutions.

## Objectives

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

- 1) Describe the objectives of the modified TACCT
- 2) Provide examples of pre-clerkship and clerkship educational activities focused on health equity
- 3) Apply how to map curricula using the modified TACCT
- 4) Identify key strategies for engaging educational leadership to implement health equity curricula

## Methods and Session Format

Welcome and Introduction of Workshop Faculty and Objectives: (5 minutes)

Large Group Interactive Presentation (15 minutes): Overview of the TACCT and how it was used to help create a longitudinal health equity curriculum. Materials for the health equity curriculum will also be shared. Discussion will also include experienced barriers and learning pearls to help facilitate creation and implementation.

Facilitated Small Group Activity (20 minutes): Large group will break into 3 smaller groups based on participant interest, each focused on 1 specific TACCT domain (Health Disparities, Bias/stereotyping or Self-reflection/Culture of Medicine). Workshop faculty will give examples of pre-clerkship and clerkship curricular components to help facilitate participants in working through the TACCT to map curricula from their institutions.

Skills Practice (20 minutes): Participants will start mapping their curricular needs based on the TACCT. In addition, they will identify key institutional stakeholders for a successful creation and implementation strategy. Participants will leave this workshop with a modifiable framework and implementation plan for when they return to their home institutions.

Large Group Wrap-up and evaluations (15 minutes): Participants will be invited to share their experiences in the workshop and how they will incorporate what they have learned.

## Experience

Manasa Ayyala is Health Equity and Social Justice (HESJ) Curriculum Lead for the Clerkships

Michelle Dalla Piazza is the HESJ Pre-clerkship Course Director.

Mercedes Padilla-Register is research associate and HESJ Course Administrator.

Maria Soto-Greene is Vice Dean and Director of the Hispanic Center of Excellence.

## References

1. Centers for Disease Control. Community Health and Program Services (CHAPS): Health disparities among racial/ethnic populations. Atlanta: U.S. Department of Health and Human Services. 2008.
2. Association of American Medical Colleges. Cultural competence education. 2005.
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## **Workshop 23** - Using Integrated Illness Scripts to Facilitate Meaningful Transfer of Core Basic Science Understanding into Common Clinical Decision-Making

<sup>1</sup>L. Fall, <sup>2</sup>B. Wilcox

<sup>1</sup>Geisel School of Medicine at Dartmouth, <sup>2</sup>Geisinger Commonwealth School of Medicine

## Rationale

Medical schools struggle to meaningfully integrate basic science core concepts and teaching into the clinical curriculum, particularly in a manner that supports clinical reasoning and the causal mechanisms underlying common clinical conditions (1). Cognitive research demonstrates that expert scientists and clinicians have difficulty deconstructing their knowledge and making it available to teach novice learners (2). Illness scripts have been shown to be an effective method by which novices learn clinical reasoning skills (3). Collaborative development of illness scripts by basic scientists and clinicians is a means for schematic integration of basic science concepts into these cognitive representations of core clinical conditions. This tool can be used to facilitate deconstruction and transfer by learners in order to improve diagnostic reasoning (4).

## Objectives

- 1) Explain the rationale and cite evidence that supports utilizing illness scripts to meaningfully integrate and transfer students' basic science understanding into clinical decision-making.
- 2) Using small teams, create three integrated illness scripts for one common clinical presentation that support meaningful basic science integration in to diagnostic reasoning.
- 3) Consider opportunities for applying this cognitive integration method into local curriculum and courses.

## Methods and Session Format

1. Welcome, introductions and team development based on clinical and basic science expertise (15 min)

2. Mini didactic on improving transfer through the use of integrated illness scripts: evidence, approach and presenter experience (20 min)

3. Choice of common presentation and development of three integrated illness scripts, based on participants' areas of clinical and basic science expertise (25 min)
4. Discussion of utility of this method at participants' home institution (15 min)

#### **Experience**

Leslie Fall, MD is the Executive Director of Aquifer/MedU and an Adjunct Professor of Pediatrics at the Geisel School of Medicine. Brian D. Wilcox, MD, PhD is the Assistant Chair of Obstetrics and Gynecology at Geisinger Commonwealth School of Medicine in Scranton, Pennsylvania.

#### **References**

1. Kulasegaram K et al. Cognition before curriculum: Rethinking the integration of basic science and clinical learning. *Academic Medicine*. 2013; 88(10): 1578-1585.
  2. Schmidt HG and Rikers RM. How expertise develops in medicine: knowledge encapsulation and illness script formation. *Medical Education*. 2007; 41:1133-1139.
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### **Workshop 24 - Navigating Learners Through the Murky Waters of #FOAMed**

S. Trivedi, M. Fried  
New York University School of Medicine

#### **Rationale**

Over the last decade there has been an explosion of new internet based resources for medical education. Our trainees are evolving with these new learning solutions. Blogs, podcasts, videos and twitter feeds are the currency in this free-market knowledge economy. As the supply and demand of these asynchronous resources synergistically grew so too did a growing body of literature describing how to evaluate and curate them. Thus the goals of our workshop are twofold. First, our workshop will introduce learners and educators to the innovation that is FOAMed. FOAMed (Free Open-Access Medical Education) is a collaboration of learners and educators who develop and participate in internet-based educational resources. Participants will leave with an armamentarium of vetted resources that meet the needs of modern learners. Second, we will also equip participants with the skills to appraise the blogs, podcasts and twitter feeds themselves. In one survey about use of asynchronous education by US emergency medicine residents 42% of respondents reported that they "rarely" or "never" reviewed the references of online resources (Mallin 2014). Our workshop will focus on the need for educators to model critical appraisal of free online media, just like we teach critical appraisal of the literature.

#### **Objectives**

1. Describe FOAMed and list several examples.
2. Apply tools to evaluate the quality of podcasts, blogs and twitter feeds.
3. Describe limitations and applicability of FOAMed resources in contemporary graduate medical education
4. Empower with actionable ways they can advocates for critical appraisal of FOAM resource to their learners and institutions.

#### **Methods and Session Format**

20 minutes-- First, we will introduce FOAM and use compelling cases of various learners that highlight why educators should be skilled in critically appraising FOAM.

25 minutes-- With a group-based exploratory activity, we will showcase several different resources. The participants in our workshop will split into small groups to critically evaluate a particular resource (a blog, podcast or twitter feed) using validated tools. Some will intentionally be high quality and some lower quality in terms of digital scholarship.

25 minutes -- Each group will share with the larger group their resources and discuss uses, limitations and applications. This accomplishes several objectives: it exposes our participants to novel resources, allows for discussion about incorporation into existing educational infrastructure and models methods of resource evaluation.

15 minutes: Our workshop will close with a discussion of how each participant will model critical appraisal on an individual level and if and how FOAM appraisal should be addressed within the curriculum at institutions.

5 minutes- Closing and feedback survey

Today's educators and learners should be aware of learning opportunities in the forms of podcasts, twitter feeds and blogs that provide the just-in-time education that Millennial learners expect. Our workshop will help today's educators guide learners towards reliable sources and model how to evaluate online resources in a rapidly changing educational landscape.

#### **Experience**

Both presenters have given this talk at NYU, which was highly received and led to rich discourse; we have created our own FOAM podcast through which we hope to model digital scholarship.

### References

1. Lin M, Joshi N, Grock A, et al. Approved Instructional Resources Series: A National Initiative to Identify Quality Emergency Medicine Blog and Podcast Content for Resident Education. *J Grad Med Educ.* 2016;8(2):219-25.
2. Lin, Michelle, et al. "Quality indicators for blogs and podcasts used in medical education: modified Delphi consensus recommendations by an international cohort of health professions educators." *Postgraduate medical journal* 91.1080 (2015): 546-550.
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### **Workshop 25** - Miles Ahead: Meeting Your Interprofessional Milestones through Ambulatory Curricular Innovation

<sup>1</sup>J. Ehrlich, <sup>2</sup>E. Leilani Lee, <sup>1</sup>J. Verbsky, <sup>2</sup>A. Chisty, <sup>1</sup>F. Cacace, <sup>2</sup>T. Pulvino, <sup>2</sup>D. Koren, <sup>3</sup>N. Mazzola, <sup>1</sup>D. Coletti  
<sup>1</sup>Donald and Barbara Zucker School of Medicine At Hofstra/Northwell, <sup>2</sup>Lewis Katz School of Medicine at Temple University, <sup>3</sup>St. John's University College of Pharmacy and Health Sciences

### Rationale

Interprofessional education (IPE) trains health professionals in effective, collaborative team-based care with the goal of improving health outcomes for patients. Studies have shown that better interprofessional teamwork leads to more organized care, improved job satisfaction and reduced burnout. Internal medicine residency training traditionally has limited integration of educational curricula with other health professionals. Residents in ambulatory clinics often have little experience working in interprofessional teams. Many internal medicine residency clinics are becoming towards Patient Centered Medical Homes (PCMH's), the cornerstone of which is interprofessional collaborative care. Despite this shift, residents have been found to under-appreciate the benefits of working within PCMH's and miss opportunities to improve their clinical and educational experiences by working in interprofessional teams. This underscores the explicit need for IPE in the ambulatory setting.

### Objectives

1. Define interprofessional education and review AGCME milestones addressing interprofessional team-based care
2. Explore examples of interprofessional ambulatory curricular design and reflect on the experiences of two university-based residency programs in implementing innovative ambulatory interprofessional curricula
3. Examine resources that exist within your own institution and develop strategies for implementing an interprofessional educational program in your residency program's ambulatory clinic

### Methods and Session Format

We will review the importance of IPE in residency training. We will describe how two different internal medicine residency programs successfully integrated IPE into ambulatory education through curricular innovations including interprofessional team-based learning didactics, interprofessional quality improvement projects, interprofessional journal club, and interprofessional competitions. In small groups, participants will identify the IPE needs of their unique institutions and brainstorm strategies for implementing IPE in their ambulatory settings. Participants will be introduced to a workbook and rubric which will help them plan interprofessional didactics adaptable to any institution's available faculty and resources. Presenters will conclude by highlighting that building strong interprofessional clinic teams cultivates resilience in an increasingly demanding work environment for residents and all team members.

15 minutes - Framing talk - introduction/objectives/background/examples

5 minutes - Individual activity - setting goals using rubric

15 minutes - Small group discussion - inter-institutional sharing around goals, opportunities, barriers

15 minutes - Brainstorm with non-physician faculty effective collaboration strategies

15 minutes - Large group debrief

5 minutes - Q+A/concluding thoughts

5 minutes - Evaluation

### Experience

Drs. Cacace, Verbsky and Ehrlich are Associate Program Directors, core ambulatory medical education faculty, and core precepting faculty for a HRSA grant-funded interprofessional clinic with extensive experience in leading interprofessional team-based care, as well as regularly developing and co-delivering interprofessional didactics for a diverse group of learners both in the small HRSA clinic and in the broader resident clinic.

Drs. Lee and Chisty are Associate Program Directors, core ambulatory medical education faculty, and core precepting faculty for a large urban residency clinic within which they have productively integrated interprofessional staff in quality improvement projects and didactic teaching.

Drs. Pulvino, Koren, and Mazzola are clinical pharmacists and core ambulatory faculty with experience in developing and co-delivering interprofessional didactics.

Dr. Coletti is a clinical psychologist whose career centers upon interprofessional care of complicated patients, yielding invaluable experience in IP curriculum development, co-delivery, and evaluation.

#### **References**

1. Interprofessional Education Collaborative Expert Panel. (2011). Core competencies for interprofessional collaborative practice: Report of an expert panel. Washington, D.C.: Interprofessional Education Collaborative.
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## Oral Abstracts

**Oral Abstract 1** - Are Mid-Year Faculty Milestones Evaluations Predictive of Resident Performance on Urology In-Service Examination?

E. Sebesta, K. Cooper, G. Badalato  
Columbia University College of Physicians and Surgeons

### **Background or theoretic framework and importance to the field**

The Accreditation Council for Graduate Medical Education recently introduced the competency-based Milestones system for resident evaluation. It is unknown how the Milestones correlate to performance on other objective tests in-service exams (ISE). Recent literature from general surgery suggests some agreement between Milestones evaluations and ISE scores, especially in the medical knowledge (MK) sub-competency. In a recent survey of urology residency program directors (PDs) we received feedback that most PDs do not think the Milestones correlate with ISE scores. Therefore, our objective was to assess the correlation between faculty Milestones assessments and urology resident ISE scores.

### **Methods**

Mid-year faculty Milestones and yearly ISE scores were obtained for residents from 2013-2016. Linear regression was used to assess correlation between the Milestones and both ISE percentage correct and ISE percentile scores.

### **Results**

A total of 49 faculty Milestones evaluations and ISE scores were included for analysis. The mean percentage correct ISE score was  $62.5 \pm 10.4\%$  and mean percentile was  $40.4 \pm 40.0$  (median 30). Mean total Milestones score was positively correlated to percentage ISE score ( $r=0.69$ ) but weakly correlated to percentile score ( $r=0.29$ ). Mean problem based learning and improvement (PBLI) score was in best concordance with higher percentage ISE score ( $R^2=0.54$ ,  $p<0.01$ ), followed by MK score ( $R^2=0.48$ ,  $p<0.01$ ) and patient care (PC) score ( $R^2=0.46$ ,  $p<0.01$ ). The MK4 question specifically pertains to ISE score, and as expected, was in best concordance with ISE percentage score ( $R^2=0.55$ ,  $p=0.006$ ).

### **Conclusions**

The mid-year faculty Milestones evaluation positively correlates with urology ISE scores, with the PBLI, MK, and PC sub-competencies being most predictive of percentage correct ISE score. In the future lower scores in these areas may help identify residents who can benefit from additional ISE preparation. Further investigation with more years of data will help identify the possible predictive value of the Milestones to other measures of resident performance.

### **References**

Kimbrough MK, Thrush CR, Barrett E, Bentley FR, Sexton KW. Are Surgical Milestone Assessment Predictive of In-Training Examination Scores? J Surg Educ. 2017.

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**Oral Abstract 2** - Can Entrustable Professional Activities be Assessed in a Simulation Environment? A mixed methods study

<sup>1</sup>K. Gielissen, <sup>2</sup>T. Moadel, <sup>1</sup>A. Wong

<sup>1</sup>Yale School of Medicine, <sup>2</sup>Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

### **Background or theoretic framework and importance to the field**

Entrustable professional activities (EPAs) help supervisors make competency-based decisions on readiness to perform work based on supervision needs. Simulation provides a controlled environment to objectively measure medical student skills without threat to patient safety. The goal of our study is to determine if EPAs can be effectively observed in a simulated setting, develop assessment tools for EPAs related to oral presentations and handoffs, and determine students' ability to self-assess using an entrustment framework.

### **Methods**

We developed two simulations using the modified delphi technique. Each case required communication with: family, consultants, primary doctors, and accepting physicians. Instruments for EPA 6 (oral presentations) and EPA 8 (handoffs) were developed using a 5-point ad hoc entrustment scale. A secondary tool was constructed using narrative descriptions of learners at each level of entrustment. After simulation, participants provided qualitative data on their perception of a 'fully entrustable' learner and self-assessed their performance using an entrustment scale for each EPA. Videos were independently assessed by the primary authors.

### **Results**

Eight preclinical, 18 clinical/clerkship, and 5 postclinical participants were enrolled. Average preclinical self-assessment scores were 3.00 (3.64-2.36, 95% CI) for EPA 6 and 3.13 (3.81-2.44) for EPA 8. Clinical students'

averaged 3.94 (4.28-3.61) and 3.71 (4.39-3.39). Postclinical averaged 4.40 (5.18-3.62) and 4.40 (4.88-3.92). Initial results show early learners self-scored at higher levels of entrustment than scores from supervising assessors. Scoring and qualitative analysis are underway; results will be presented at the NEGEA meeting.

### **Conclusions**

We determined EPA instruments require modification of language to better describe objective, observable behaviors in the simulation environment. Further, students early in training demonstrated poor ability to self-assess on an entrustment scale compared to scores provided by clinical supervisors. Though we observed EPA competencies, the cases did not reveal clinical competence. Review of the qualitative data may demonstrate trends in students' ability to self-assess over time.

### **References**

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  5. Ten Cate O, Hart D, Ankel F, et al. International Competency-Based Medical Education Collaborators. Entrustment decision making in clinical training. *Acad Med.* 2016 February; 91(2): 191-198.
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### **Oral Abstract 3 - Incoming Interns Perceived Preparedness for Core Entrustable Professional Activities**

E. Pearlman, M. Pawelczak, A. Yacht, J. Bird, G. Farina  
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

#### **Background or theoretic framework and importance to the field**

The AAMC described 13 Entrustable Professional Activities (EPAs) which every graduating medical student should perform proficiently on day 1 of residency(1). We studied how prepared starting interns felt in the EPAs.

#### **Methods**

PGY-1 residents from all ACGME-accredited residency programs at Northwell were surveyed on how well medical school prepared them in the EPAs. Data were collected on type of medical school attended, participation in an Acting/Sub-Internship (AI/SI), knowledge of EPAs, and participation in an EPA experience in medical school.

#### **Results**

- We collected 224 surveys out of 384(58%) PGY-1s.
- Types of schools attended: 61.2% US allopathic, 14.6% US osteopathic, and 24.2% international.
- 67% of interns had not heard of EPAs.
- 29% said their school offered an EPA experience. 82% of those were required.
- Most PGY1s participated in an AI/SI.
- >80% felt prepared in all EPAs except entering and discussing orders (60.7%) and giving or receiving handovers (73%).
- US allopathic students were significantly more likely to have heard of EPAs than international students and were more likely to have participated in an EPA experience during medical school.
- US allopathic students reported being significantly more prepared than international students in oral presentations and evidence-based medicine.
- Students who participated in an EPA experience in medical school were significantly more prepared for oral presentations and evidence-based medicine

#### **Conclusions**

- The majority of interns entering residency have not heard of EPAs.
- Less than 1/3 of medical schools provided students with an EPA experience.
- International students are less likely to be aware of EPAs, to have experience with them, and report being less prepared in oral presentations and evidence-based medicine than allopathic students.
- Consistent with others(2,3), incoming interns feel the least prepared in order writing and handoffs.
- Limitations: conducted in a single healthcare organization, reducing generalizability.

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#### **Oral Abstract 4 - Developing Subspecialty Specific Entrustable Professional Activities Through a Double Delphi Process**

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##### **Background or theoretic framework and importance to the field**

To bridge the gap between the theoretical aspects of competency-based training and real world clinical practice through the development of subspecialty specific entrusted professional activities (EPAs) for breast imaging and provide a validity-enhancing methodology that may be relevant to other subspecialties. This presentation will discuss the 4 stage process used to create and confirm a final list of EPAs, areas of process improvement, and future directions.

##### **Methods**

A national group of 5 breast imaging experts employed a 4 stage process to develop breast imaging EPAs. Stage 1: the group used a consensus driven process to construct a proposed list of EPAs. Stage 2: an extensive literature search was performed of current breast imaging guidelines and curricula. Stage 3: two rounds of a modified Delphi technique was performed. Stage 4: a Delphi study using 17 national experts in breast imaging appropriateness was performed. All participants completed a brief training program on EPAs. Essentialness was measured on a 5 point scale with comments. EPAs were included if the context validity index was > 0.8.

##### **Results**

Stage 1, 2 and 3 yielded 10, 12 and 8 EPAs, respectively. In stage 4, national experts reached consensus via Delphi study resulting in 8 EPAs for breast imaging within a traditional radiology residency. These can now be applied to curriculum development and assessment of trainees strategies.

##### **Conclusions**

The final list of 8 EPAs provides a strong foundation for competency-based assessment specific to breast imaging for radiology residents. We anticipate this process of using a multi-stage, multi-group Delphi methodology to reach consensus and strengthen content validity from multi-institutional education experts in the field can serve as a model for educational efforts in other subspecialties to develop their EPAs for postgraduate trainees.

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#### **Oral Abstract 5 - The Path to Medical School: Does First-Generation Status Matter?**

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##### **Background or theoretic framework and importance to the field**

First-generation college graduates (FGCS) comprise an under-represented group among US medical students,<sup>1</sup> yet there is a paucity of research on the experiences and trajectories of FGCS physician aspirants.<sup>1,2</sup> We examined

differences in likelihood of each of three outcomes, medical-school application, acceptance, and matriculation, between FGCS and continuing-generation college students (CGCS, with at least one college-graduate parent).

### **Methods**

We obtained individualized, de-identified records of all 2001-2006 Association of American Medical Colleges (AAMC) Pre-Medical College Admission Test (MCAT) Questionnaire (PMQ) respondents with follow-up through 2012. Using Chi-square tests, we measured proportional differences between FGCS and CGCS for each outcome (2-sided P values reported). In separate multivariable logistic regression models, we examined the odds of each outcome for FGCS (vs. CGCS), adjusting for gender, race/ethnicity, MCAT prep course, paid employment, college summer academic enrichment program, college laboratory research apprenticeship, and MCAT score, reporting adjusted odds ratios (aOR) and 95% confidence intervals (CI).

### **Results**

Of all 246,780 PMQ respondents, we included 211,216 (85.6%) with complete data. Of these 211,216 PMQ respondents, 142,847 (67.6%) applied to medical school (58.0% [30,320/52,302] FGCS vs. 70.8% [112,527/158,914] CGCS;  $P < .001$ ); 86,486 (60.5% of 142,847) applicants were accepted (48.5% [14,708/30,320] FGCS vs. 63.8% [71,778/112,527] CGCS;  $P < .001$ ), and 84,604 (97.8% of 86,486) acceptees matriculated (97.6% [14,348/14,708] FGCS vs. 97.9% [70,256/71,778] CGCS; 2-sided  $P = .013$ ). In multivariable logistic regression models FGCS (vs. CGCS) were less likely to apply (aOR 0.84, 95% CI 0.82-0.86) and less likely to be accepted (aOR 0.85, 95% CI 0.83-0.88) to medical school, but were equally likely to matriculate if accepted (aOR 0.94, 95% CI 0.84-1.06).

### **Conclusions**

Although there may be other unmeasured variables, these data indicate significant disparities in medical-school application and acceptance between PMQ-respondent FGCS and CGCS. Improvements in medical-school application counseling and medical-school admission processes may help bridge these disparities.<sup>3</sup>

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**Oral Abstract 6** - Health Equity Advocacy and Leadership (HEAL): A student-initiated educational pathway that empowers medical students to address health disparities and improve patient outcomes and community health

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### **Objective or purpose of innovation**

A complex and radically changing healthcare landscape requires physicians who are well-versed in the social determinants of health to improve patients' health outcomes. As the only academic medical center in Brooklyn, SUNY Downstate is well-positioned to be a leader in educating future healthcare professionals to address health disparities. The goal of HEAL is to offer a longitudinal experience within a social cognitive framework that will enhance students' understanding of how a multiplicity of factors operate to influence health outcomes at the individual, community, system, and policy level.

### **Instructional methods and approach**

HEAL is a student-led initiative composed of a comprehensive curriculum that spans clinical practice, research, and advocacy. A multidisciplinary set of core requirements includes a didactic journal club, community partnership activities, with organizations such as Kings Against Violence Initiative, and implementation of these themes in the form of a scholarly project. Collaborating interdisciplinary faculty in the fields of medical education, public health, basic science research, and cultural competency contributed to its development, direct its implementation and select participants from a large pool of student applicants.

### **Educational Outcomes**

HEAL will foster an environment that enhances the skills of a new generation of physicians whose practice is impactful on the communities they serve. Data on how the pathway influences future residency placements, especially in the field of primary care as well as in underserved areas, will be collected.

### **Strength of Innovation**

HEAL bridges a gap in health equity education in the extracurricular setting, but our intent is to more fully integrate into the curriculum itself, an effort already underway. It capitalizes on the unique diversity of interdisciplinary faculty,

students, and the many partnerships with the community we serve. The versatility in pathway emphasis to accommodate different career trajectories (basic science, policy, clinical practice) is also innovative. This type of curricular change can be a model for other medical schools.

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#### **Oral Abstract 7** - Harlem Public Health Commute: Developing an Online Public Health Curriculum for Medical Students

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#### **Background or theoretic framework and importance to the field**

As physicians' roles in public health become more prominent, efforts are necessary to prepare medical students to incorporate public health concepts into their care of patients (1). We aimed to assess the need for a public health curriculum among students during their major clinical year and used the needs assessment data to develop a web-based curriculum that coincided with clinical rotations.

#### **Methods**

We developed a web-based curriculum for medical students rotating at a public safety-net hospital (<http://blogs.cuit.columbia.edu/sg2902/>). 50 students participated while rotating on pediatrics, medicine, primary care, psychiatry, and surgery services between April 10 and September 22, 2017. Students were provided with guiding questions and media-based resources (e.g. podcasts, TedTalks, YouTube videos) in weekly modules addressing specific topics in public health. Topics included health systems, social determinants, race, substance use and harm reduction, violence, and alternative health systems. Each module incorporated 30 minutes of mobile-optimized content, including a section with specific data relating the topic to the Central Harlem community. Familiarity with public health issues was assessed with a pre-and-post program quiz, including 10 multiple choice and 2 open-ended questions.

#### **Results**

Among the 50 participating students during the first 4 rotations following the curriculum introduction, 41 (82%) completed the pre-and-post assessments. In the pre-quiz, the mean correct score was 58% of multiple choice questions. After completing the 5-week curriculum, the mean correct score was 68% (mean difference by paired t test 10.0, 95%CI 2.7-17.3,  $p = 0.008$ ). Of the 41 students who completed the curriculum, 22 (54%) improved their score by a mean difference of 25.9% ( $p < 0.001$ ).

#### **Conclusions**

Learners' participating in this 5-week online public health curriculum expressed positive reactions to the curriculum and demonstrated a statistically significant increase in public health knowledge. Students also recognized the importance of public health education in medical school and in their future practice of medicine.

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#### **Oral Abstract 8** - The Beyond the Books Program: Improving Medical Student Attitudes Toward the Underserved

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#### **Background or theoretic framework and importance to the field**

The Beyond the Books (BTB) program is a first year elective at Geisel School of Medicine designed to improve medical student understanding of health disparity and empathy for underserved communities. Medical school negatively impacts student attitudes toward the underserved, and despite recommendations from the Association of American Medical Colleges (AAMC), American medical schools have continued to graduate students lacking the

knowledge and empathy necessary to effectively intervene on behalf of underserved communities (1,2,3).

### **Methods**

BTB utilizes a combined didactic and experiential curriculum to provide medical students with a better understanding of health disparity and the systemic racism, social determinants of health (SDH) and barriers to health that drive it while simultaneously fostering an empathy for the communities it impacts. The effect of the curriculum on attitudes toward the underserved was evaluated via a longitudinal prospective cohort study. The Medical Student Attitudes Toward the Underserved (MSATU) questionnaire was administered to BTB participants (n = 13) and non-participant first year medical student controls (n = 29) at the initiation and conclusion of the program. BTB's effect on understanding of SDH, health disparity, personal bias and empathy was assessed via a qualitative, 5-point Likert scale (strongly disagree to strongly agree) questionnaire distributed to participants at the end of the program.

### **Results**

Students acknowledged that BTB had helped them: 1. learn more about SDH and health inequity (4.27) 2. identify and correct false stereotypes and preconceptions (4.18), and 3. increase their empathy for underserved communities (4.4). While there was no significant difference between participant and non-participant MSATU scores at BTB's beginning, at the the program's conclusion participant MSATU scores were observed to be significantly higher than scores of non-participant controls (P<0.001).

### **Conclusions**

Our preliminary MSATU data support the capability of short-term, pre-clinical interventions to significantly impact student attitudes toward underserved communities during formative years of medical education.

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## **Oral Abstract 9 - Can We Predict Step 2 CS Performance? Exploring the Relationship between Assessment Data and Step 2 CS Performance**

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### **Background or theoretic framework and importance to the field**

The USMLE introduced its clinical skill exam (CS2) in 2004 to assess English language proficiency. Since that time, CS2 has become a critical exam in the national licensing process. The USMLE recently announced a change in standards predicted to increase failure rates. Medical educators are therefore under pressure to help identify students at risk for failing this high-stakes exam. Our school (Zucker SOM) recognized this need and is developing a model to identify students at risk for poor performance on CS2. Here, we describe the first steps in constructing this model.

### **Methods**

CS2 reports were collected from test takers from the Classes of 2015, 2016 and 2017. Performance was calculated by assigning numerical scores (0-20) to the ICE and CIS portions of the CS2 score report. A variety of internally and externally generated assessments were selected to build a model. Pearson's correlations (P<0.05) were determined between predictor variables and CS2 scores and linear regression was performed using SAS software (v9).

### **Results**

Among external measures, NBME subject ("Shelf") exam percentiles from Psychiatry and Obstetrics and Gynecology were found to be significant predictors of CS2, accounting for 21% of the variance. When including both external and internal measures, the variance increased to 46%. These measures included: average "Shelf" percentile score and average Clinical Skills grades across six clerkships; five clerkship specific variables, including overall Psychiatry and Neurology grades, Psychiatry Clinical Skills grade, Psychiatry Communication score, and Medicine Post Encounter score.

### **Conclusions**

A combination of generalizable, external metrics as well as internal assessment data correlates to performance on CS2 and may be used to predict students potentially at risk. A sizeable degree of the variance in performance (46%) has been accounted for using these metrics. Limitations include requirement for self-reporting by students.

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### **Oral Abstract 10 - A Structured Approach to Communication and Interpersonal Skills Remediation**

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#### **Objective or purpose of innovation**

Effective physician communication and interpersonal skills (CIS) are essential to facilitating information-gathering, establishing patient partnerships, and promoting adherence; they are strongly linked to improved outcomes. The NBME recognizes the imperative for robust communication skills and the USMLE Step 2 Clinical Skills (CS) exam increases emphasis on CIS annually. Most medical schools administer a summative assessment with a CIS domain. However, faculty report that CIS skills are amongst the most challenging to remediate, and gap remains in the availability of a structured, experiential protocol for CIS remediation. Our program seeks to provide faculty with a concrete guide to CIS remediation.

#### **Instructional methods and approach**

Third year students at our institution who perform poorly on a summative OSCE with a CIS domain participate in a 1-week remediation course. This includes a uniquely-structured Standardized Patient (SP) CIS role-play using time-in/time-out (TITO) technique. Role-plays are chosen by distilling student learning needs beforehand using video, checklist, and faculty data. The TITOs are led by trained faculty/facilitators. During TITOs, facilitators or learners may call "time-out" when guidance is needed. SPs are trained to give sensitive feedback "in character," giving insight into patient emotions. The technique offers students opportunities to adjust their behavior in-the-moment. Students participating in CIS remediation complete two summative SP encounters following their TITO role-play(s).

#### **Educational Outcomes**

From 2015-2017, 28 students participated in the structured CIS remediation protocol. 28/28 (100%) of the students who participated in the structured CIS remediation passed their Step 2 CS on their first attempt.

#### **Strength of Innovation**

Our structured process freed facilitators to coach the encounter and permitted SPs to deliver difficult feedback. Within this framework, previously resistant students engaged with the SPs and changed behaviors. Our experiential model is aligned with established goals and objectives of CIS remediation and provides a practical way to implement them. This method can be applied to any level of learner.

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### **Oral Abstract 11 - Self-recorded Videos to Teach and Assess Competency in Oral Presentation of a Clinical Encounter Across the Pre-Clerkship Continuum**

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#### **Objective or purpose of innovation**

Oral presentation of a clinical encounter is a Core Entrustable Professional Activity (EPA) for entering residency (EPA6). Feedback on oral presentation skills is sporadic, provided by different facilitators, and not tailored to the developmental guidance of learners. We addressed this gap by using a hybrid (online/live) feedback model of self-

recorded videos of clinical encounters.

### **Instructional methods and approach**

We implemented a coaching model where an assigned facilitator provides formative feedback and assessment longitudinally through the preclerkship courses using self-recorded videos, to facilitate faculty and peer feedback. Curricular components include 1) coaching, 2) formative peer/facilitator feedback, and 3) summative/competency assessments. Groups maintained 1 coach with the same 6 learners over the preclerkship continuum. Students interviewed and examined a “patient” and submitted their oral presentations as a self-recorded video with asynchronous online feedback. Each peer/faculty provided verbal and written feedback online and in-person. Deliverables include oral presentation with peer/coach formative written and narrative feedback and longitudinal competency assessments of EPA 6.

### **Educational Outcomes**

Self-recorded video asynchronous reviewing format allowed for efficient and flexible use of in-class clinical faculty time and allowed learners, peers, and faculty to review, self-reflect, role-model, and monitor progress. Learners developed skills to receive and provide constructive, targeted feedback. This competency is assessed using a recorded video oral presentation graded in a series of EPA OSCEs across four years.

### **Strength of Innovation**

This coaching and hybrid feedback model results in shared expectations and standards for the learners. It strengthens learner relationships allowing for exchange of honest, constructive feedback. Self-recording of videos promotes a cycle of self-assessment, resulting in multiple “takes” as reported by students, fostering life-long learning skills. This can be a tool for medical educators to teach and assess life-long learning and oral presentation skills and allow learners to develop early habits of deliberate practice.

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## **Oral Abstract 12 - Exploring Standardized Patients' Perspectives on Working with Medical Students**

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### **Background or theoretic framework and importance to the field**

Little is known about how working with emerging medical professionals affects Standardized Patients' (SPs') professional identities, yet understanding the SP-medical student interaction could be useful for screening SPs, supporting SP professional identity formation, and bridging SP and medical student cultures. This project provides the unique perspective of non-healthcare professionals involved in the growth of medical students into physicians.

### **Methods**

Qualitative methods were used to understand the SPs' perspectives. Two researchers, without evaluative relationships with the SPs, conducted 2 one-hour focus group interviews (n=3; n=9) using a semi-structured interview protocol. Interviews were audio-recorded and transcribed. Three researchers independently analyzed the transcripts to identify clusters of meaning and codes. Codes identified by consensus and analysis continued until saturation was reached, followed by identification of categories and themes. To ensure credibility and trustworthiness, investigators used triangulation of methods and researchers, prolonged engagement with the data, and presentation of thick rich descriptions as evidence of each theme.

### **Results**

Analysis of the themes indicated SPs:

- Experienced a transformation of purpose and the emergence of a new professional identity (genuine professional, guide, teacher, counselor, surrogate parent)
- Discovered personal meaning and mutuality in their relationships with students (satisfaction helping others, benefiting society, growing personally)
- Found themselves reacting to student behaviors with admiration, dislike, surprise, discomfort.
- Confronted challenges moving between their simulated and real selves.

### **Conclusions**

This analysis provided insights into transformations SPs underwent as a result their work. It revealed a self-



actualization process similar to the professional identity formation process of students. Understanding this process may inform SP educators how to best nurture identity, train SPs, reinforce job meaningfulness and increase SP recruitment and retention. SP perspectives about their students' behaviors may be useful to SP educators in acclimatizing them to the simulation process.

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### **Oral Abstract 13 - Modernizing Clinical Ethics Curricula: A New Approach to Ancient Principles**

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#### **Objective or purpose of innovation**

ACGME requires residents to demonstrate "adherence to ethical principles." Studies found that residents feel they need, and benefit from, ethics training, and up to 80% believe it should be mandatory. Nevertheless, only a few formal curricula exist in residency programs, and often consist of lectures and time-consuming readings. These methods have repeatedly been demonstrated as inferior to active learning techniques. Even those active learning methods that rely on pre-class reading tend to fail in residency education.

#### **Instructional methods and approach**

We developed an original ethics curriculum using an innovative modified case-method that does not require preparatory reading. Each case is written by Columbia faculty based on real case ethical challenges and pauses at a point that forces the learners to make an ethical decision. Learners engage in a dynamic discussion to explain, defend, build on ideas, and exchange perspectives. This prospective synthesis is facilitated by pre-trained faculty or residents who skillfully pull out the decisional pivots and learning objectives of the case during the discussion. At the end, an ethics consultant familiar with the real-life case reveals what actually happened and their reasoning behind the decision.

#### **Educational Outcomes**

We aim to improve: recognition of ethical issues, knowledge of ethical and legal principles, and change in behavior regarding requesting ethics consultation. We are measuring acquisition and retention of knowledge using immediate and delayed tests. We will track number of ethics consults requested and quality of relevant information provided by the resident requesting the consultation.

#### **Strength of Innovation**

This curriculum addresses an important need in an innovative, flexible, enjoyable, and memorable format. Our growing case database and experience can be shared for replication and further improvement. Efficient testing for improved recognition and familiarity with ethical challenges is difficult. Therefore, reliance on subjective markers including resident comfort and consult quality appears necessary.

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## **Oral Abstract 14** - Effectiveness of an Acute Sexual Assault Curriculum for Emergency Medicine Residents

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### **Background or theoretic framework and importance to the field**

Caring for acute sexual assault (ASA) patients is a task all emergency providers (EPs) face. Although the American Board of Emergency Medicine views competence in this area as essential, training in it varies among emergency medicine (EM) residencies. An ASA curriculum has been adopted in the Department of EM at Alpert Medical School of Brown University as part of weekly required EM residency didactics. The objective of this study was to determine the curriculum's effectiveness in terms of affective objectives.

### **Methods**

After participation in the curriculum, learners were asked to fill out a written retrospective pre-/post- survey that included Likert scale questions regarding their perceived ability to provide components of ASA care and their attitudes towards such care. These questions addressed ability in the identification of patients who are eligible for forensic evidence collection, drug facilitated sexual assault testing, sexually transmitted infection (STI) testing and prophylaxis, and emergency contraception; accurate completion of a sexual assault evidence collection kit; identification of genital injuries; ordering of CDC-recommended STI and pregnancy testing and prophylaxis; and treatment of patients in a trauma-informed manner. One question inquired about the extent to which learners agreed that providing ASA care is part of the EP's role. Pre- and post- survey responses were compared via paired t-tests.

### **Results**

21 learners participated in the curriculum. Compared to pre- survey responses, post- survey responses demonstrated significantly increased perceived ability in the aforementioned areas (all  $p \leq 0.001$ ). Additionally, compared to pre-survey responses, post- survey responses revealed stronger agreement that providing ASA care is part of the EP's role ( $p=0.002$ ).

### **Conclusions**

Learners who participated in the ASA curriculum gained self-efficacy with regard to their ability to care for ASA patients and viewed caring for this population as more critical to their role as an EP after participation as compared to before participation.

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## **Oral Abstract 15** - Preparing Medicine Interns for their first day: A Pre-Internship Boot Camp Curriculum

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Albert Einstein College of Medicine

### **Objective or purpose of innovation**

The role of an intern is diverse, requiring skills that are clinical, procedural, and communicative. Although the skills necessary to become an effective PGY1 are sometimes covered in medical school curricula, each medical school has a unique approach and not all students come to residency with these necessary skills. Even when exposed to this material, medical students often do not have enough experience to develop mastery or comfort.

To address this issue, we conducted a needs assessment of internal medicine interns to identify areas of decreased skill and increased anxiety when transitioning from student to intern. Using this data we designed a day long "boot camp" curriculum focusing on the areas identified.

### **Instructional methods and approach**

Our curriculum is given to new internal medicine interns during their hospital orientation, days before their first workday. The boot camp consists of seven 45-minute lessons covering patient hand-offs, discharge planning, medical emergencies, basic procedures, ultrasound usage, common clinical situations, and goals of care discussions. These sessions are taught by faculty and chief residents in small groups. Each lesson consists of didactic instruction followed by case-based or hands-on practice. Additionally, learners are given a curricular packet to read covering the same educational material.

### **Educational Outcomes**

We are currently evaluating our curriculum through a randomized controlled trial of interns who had the boot camp versus those who only received the curricular packet. Interns have completed surveys one week and three months post-curriculum to evaluate its effect on medical knowledge, self-efficacy, and wellness.

### **Strength of Innovation**

There are very few known examples of pre-internship internal medicine boot camps conducted by residency programs. Other similar curricula focus on simulation based procedural training or primary care, neither of which cover the same areas as our intervention. Our curriculum is a low-cost intervention which could easily be used in similar settings and modified for local needs.

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## **Oral Abstract 16 - The Role of Morning Report in Internal Medicine Training: A Multi-Site Qualitative Study**

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### **Background or theoretic framework and importance to the field**

Morning report is a cornerstone of internal medical resident education, forming an essential part of nearly every training program in the United States. Despite the prevalence and significance of morning report, there is little research that directly evaluates its role and perceived benefits. Previous studies have relied upon expert opinion or survey data alone to explore the role of morning report. This qualitative study includes in-person interviews of key stakeholders at three institutions to identify the various perceived goals of morning report.

### **Methods**

The authors sought to identify the role of morning report by conducting semi-structured interviews of faculty, chief residents, and residents from four internal medicine residency programs at three institutions. Interviews were transcribed and analyzed using a grounded theory approach. Three authors met regularly to generate a coding structure using a constant comparative method until consensus was reached on the final coding structure. Common themes across the different institutions and participant groups were identified.

### **Results**

Across institutions, interviews revealed that the primary purpose of morning report is house staff education. Specifically, morning report provides an opportunity to further learners' educational needs, creates a safe space to develop skills, allows for collaboration between peers and faculty, provides an interactive learning environment, and centers learning around clinical cases. Other common themes include the benefits of morning report for chief residents, patients, medical students, and faculty leadership.

### **Conclusions**

Morning report is perceived to have meaningful benefits for learners, educators, and patients. Increasing awareness of the purpose of morning report may be a key factor in enhancing the efficacy of morning report across institutions.

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## **Oral Abstract 17 - BERST Academy Base Camp: Teaching passion and motivation through an innovative interprofessional teaching workshop**

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Baystate Health

### **Objective or purpose of innovation**

All great teachers have a passion to teach and motivate their learners. Our teaching academy, BERST Academy,

created a Base Camp to teach motivation and foster passion. Relying on Self-Determination Theory (Ryan & Deci, 2000) and the power of reflection in learning (Mann et al, 2009), Base Camp created community and prioritized innovation to meet its goals.

This abstract describes an innovative 2-day professional development (PD) "Base Camp" for teachers of all levels and professions.

### **Instructional methods and approach**

A team of faculty delivered all content breaking with the tradition of PowerPoint presentation. Using various teaching strategies (such as theater activities, lecture, small group work, and competition), we demonstrated ways to increase learners' motivation. Through various opportunities for reflection (such as journaling, debrief, and peer feedback), we showcased ways to promote learning.

An agenda highlighting the purpose of each section and how each section mapped to the four key principles was given to each participant. Public peer feedback was given to each faculty member throughout Base Camp so participants could watch feedback being given and received in real time.

### **Educational Outcomes**

Evaluations of Base Camp showed incredible uniformity in meeting the 4 objectives. Outside of the workshop, participants have asked to observe each other teaching to give feedback, and apply what they learned while building our community.

### **Strength of Innovation**

Base Camp highlighted several innovative approaches to PD. First, content emphasized learning rather than teaching: drawing on theories of motivation and reflection rather than teaching models (e.g, One-Minute Preceptor). Second, we deliberately reinforced community to build trust; building support for risk-taking (through educational innovation) and vulnerability (through feedback and self-reflection). Finally, innovation was promoted through improv theater activities and competition. This type of PD is available to teams at other institutions struggling to engage multiple professions and multiple levels of experience.

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## **Oral Abstract 18 - Inter-rater Reliability of a Scale to Assess Interprofessional Collaboration and Teamwork**

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### **Background or theoretic framework and importance to the field**

Interprofessional collaboration & teamwork (IPC) is a competency central to both undergraduate (UME) and graduate medical education (GME) (1). Presently, there is no existing reliable and valid tool that is standardized for the assessment of IPC skillset across the continuum (2). Therefore, we set forth to construct a measure of IPC that can be used in the clinical setting.

### **Methods**

We developed the IPC Entrustment Scale (IPCES) by adapting the Interprofessional Education Collaborative (IPEC) competencies and the AAMC Core Entrustable Professional Activity 9 (EPA9). The IPC Entrustment Scale consists of 8 dimensions of performance with ratings ranging from 1 to 8. Additionally, a global rating prompted the rater to determine the level of entrustment of the learner on a 5-point scale.

In order to test the inter-rater reliability of IPCES, we videotaped actors portraying a family meeting with a resident, medical student and social worker to discuss a surgical intervention. We recruited 36 faculty across the three institutions using purposeful sampling from four medical specialties. Raters independently viewed and rated the resident and medical student using the IPCES. Inter-rater reliability was assessed using the intraclass correlation coefficient (ICC).

### **Results**

Thirty two faculty (89%) completed ratings. Interrater reliability was moderate (ICC range: 0.50-0.65;  $p < 0.001$ ). On the individual items faculty ratings for the medical student (range: 3-5) were higher than ratings for the resident (range: 2-3); global entrustment ratings were the same for both learners (perform with direct supervision).

### **Conclusions**

This preliminary study informs the assessment of IPC skills from three diverse institutions using evaluation methods

that target EPA 9. This project demonstrates commitment to collaboration that is highly focused on creating a reliable and valid tool to assess IPC in the clinical setting across the continuum.

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### **Oral Abstract 19** - Interprofessional Education in the preclinical years at Temple University, report of initial outcomes

L. Kaplan, G. Sterling, M. Sinnott, R. Vernon, S. Santalucia, C. Idahosa, S. Spadone, P. DiGiacomo, S. Gresko, I. Calligaro, M. Rotz, D. Reifler, T. Reed  
Lewis Katz School of Medicine at Temple University

#### **Objective or purpose of innovation**

Health care delivery has been provided in a team-based format for years, however medical education has traditionally been structured in silos. For 6 years, Temple University has run an IPE program for health science campus (HSC) students to address the needs of the IPEC report as well as meet LCME and other accreditation agency standards.

#### **Instructional methods and approach**

This program is a series of four small-group exercises for HSC students and is based on social constructivist learning model to allow learners from different professions develop common understanding of health care problems by working together in small teams. Each team is comprised of a student from Dental Medicine, Medicine, Nursing, Pharmacy, Physical Therapy, Podiatry, Occupational Therapy and faculty from each school serve as facilitators for the sessions. The four sequential sessions are on;

1. Roles, perceptions and stereotypes of each discipline, commonalities in curriculum and team-building skills.
2. Introduction to patient safety in a team-based environment
3. The development of a team-based interprofessional care plan for a patient with diabetes, addressing the concepts of chronic disease management.
4. The refinement of the care plan developed in 3 to address issues of chronic pain management and opiate use/abuse.

Each team has the same student membership through the four sessions and there are both common and discipline specific pre-readings prior to each session.

#### **Educational Outcomes**

The evaluation of the programs have been positive with 85% of students positive regarding the IPE competency domains tied to each session and positive narrative responses. Since implementation there has been an increase in interprofessional collaborative efforts among the HSC students in both curricular and extracurricular activities such as the TU IHI Open School Chapter.

#### **Strength of Innovation**

The strengths of this curricular innovation have been demonstration of a modular IPE small group learning program can be implemented in a large urban university.

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### **Oral Abstract 20** - Interprofessional Approach Enhances Social Determinants of Health Education

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#### **Objective or purpose of innovation**

Leading health policy and advocacy organizations including the World Health Organization (WHO) and the American

Medical Association (AMA) have recommended that training in social determinants of health (SDH) be expanded, and even made compulsory, in medical education (1,2). Interprofessional collaborative care (ICC) has also become an essential competency domain for health professionals and a best practice model of patient care to support at risk populations and promote health equity in practice (3).

We developed a novel strategy for teaching SDH to health professional students in interprofessional teams.

### **Instructional methods and approach**

From 2014 to 2017, an interdisciplinary committee designed and implemented a one-day, Addressing Disparities in Healthcare (ADH) module for over 500 learners (first year medical, accelerated nursing, social work, dietetic, and pharmacy students). With our local community as the focal point, the ADH module required participants to work in interprofessional teams to address the social, ethical, and medical care of a standardized patient family. The module culminated in an interactive debrief session with an actual patient family and their care team, providing students with a real-life application of the modeled interprofessional care team.

### **Educational Outcomes**

Coding participant responses revealed the most prevalent themes to be “positive interaction with interprofessional peers” and “perspective,” recognizing moments when the unique viewpoints of members from other professional groups enhanced their learning. Further, participants felt that the interprofessional nature of the module improved their learning about SDH (87%), and would inform their future interactions with patients (72%). Medical students were subsequently observed utilizing the resources presented during the ADH curriculum at a future Objective Structured Clinical Examination (OSCE).

### **Strength of Innovation**

The sharing of unique perspectives via interprofessional learning has exciting possibilities in health professions education that should be further explored, particularly in regards to complex competency domains including SDH. Future work should look to strengthen assessment of learning within interprofessional teams.

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**Oral Abstract 21-** Surgeon Burnout: Implementation of a wellness curriculum to support general surgery residents a preliminary assessment

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### **Objective or purpose of innovation**

Residency training is a challenging period in a physician’s career with evidence describing decreasing levels of personal wellness and increasing rates of burnout. The Accreditation Council for Graduate Medical Education recognizes that an emerging solution may be the implementation of wellness programs into residency training (1-4). We examine our preliminary results with a formal wellness curriculum designed to support general surgery residents.

### **Instructional methods and approach**

Needs assessment surveys and “round table discussions” were employed to determine resident perception of wellness and develop an informed curriculum. Monthly hour-long sessions on unique topics were facilitated by a faculty wellness champion and departmental psychologist. Feedback surveys were collected following each session. The physician well-being index (PWBI) was administered to residents at various time points and results aggregated (higher values indicating poorer well-being).

### **Educational Outcomes**

Five sessions have been held to date since July 2017. Topics introduced were electronic medical record optimization, injury prevention, nutrition, mindfulness and a “faculty reflections on wellness” session. Residents reporting usefulness of each session were 65.2%, 85.2%, 84.0%, 92.6, and 95% respectively. Recommendations on whether to offer each session next year were 4.8, 7.0, 6.8, 7.7, and 7.6 (average, scale of 1-10). On average, six additional topics per session were derived from resident feedback. Overall, qualitative feedback was positive, constructive and facilitative of systemic changes. Median aggregate PWBI scores prior to initiating the curriculum and after the 4th session were 1.5

and 2.0 relative to 3.5 in the previous year.

### **Strength of Innovation**

Results of the first-quarter implementation of a formal wellness curriculum suggest that residents derive usefulness from the explored topics. Residents identified unique topics within sessions to help co-construct future curriculums. Though preliminary, PWBI scores and qualitative feedback suggest the curriculum and departmental culture help support resident well-being. Expansion of the curriculum in collaboration with other departmental residency and fellowship programs is currently ongoing.

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### **Oral Abstract 22 - Effect of Perceived Emergency Medicine Attending Wellness on Resident Job Selection**

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#### **Background or theoretic framework and importance to the field**

Burnout, a syndrome of emotional exhaustion and depersonalization experienced most frequently by people who work with other people (Maslach et al., 1996), is high amongst emergency medicine physicians (West et al., 2011, Wallace et al., 2009). Many residents model the habits of their more successful attendings and those who exhibit higher levels of wellness. In this study, we seek to determine a relationship between resident perceptions of attending wellness and their eventual choice for academic versus non-academic careers.

#### **Methods**

Residents attending the All New Jersey Symposium for Emergency Medicine Residents (ANSER) on March 16, 2016 were asked to participate in a written survey. Sixty-three residents participated out of a total of 83 in attendance, yielding a response rate of 76%. Associations between each predictor and career plans are studied using exact Cochran-Mantel-Haenszel statistics for ordinal variables.

#### **Results**

Most residents are satisfied by their jobs. However, a majority of residents feel they experience stress due to their work, and nearly half describe themselves as burned out. Only half of residents feel that their values are aligned with their leadership's values. A quarter of residents reported physician burnout limiting their team's effectiveness. Those considering a partially academic career felt more control over their workload. There were no significant differences between level of burnout and choosing partially academic versus community careers.

#### **Conclusions**

Resident burnout is an increasing concern amongst residencies, and in this sample, many residents reported feeling burnout. However, experiencing burn out does not dissuade residents from an academic career. More investigation into preventing resident burnout and fostering wellness in emergency medicine is needed.

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### **Oral Abstract 23 - Burnt Out From the Beginning: Burnout of students in their first three years at a new medical school**

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The Frank H. Netter MD School of Medicine

### **Background or theoretic framework and importance to the field**

Burnout, which consists of emotional exhaustion, depersonalization, and a sense of low personal accomplishment, is a serious problem in medical training [1]. The Frank H. Netter M.D. School of Medicine at Quinnipiac University (Netter SOM) is a new medical school that has incorporated curricular elements to promote student wellness. Our study's goal is to assess the prevalence of student burnout at the Netter SOM from entry through third year, when it occurs, and which curricular elements influence its occurrence.

### **Methods**

A survey that contained the Maslach Burnout Inventory [2], demographic questions, and three open-ended questions exploring factors which prevented, caused, and alleviated burnout was utilized. Surveys were sent out via email at the beginning and the end of the 2016-2017 academic year to first, second, and third-year medical students at the Netter SOM.

### **Results**

Respondents to our survey included 157 participants in the first round (response rate = 59%) and 119 participants in the second round (response rate = 45%). 57% of the total student population met criteria for burnout at the first round and this significantly increased to 77% at the second round ( $p < .001$ ). There was no significant difference between classes. Notably, first-year students reported burnout levels of 64.5% during orientation and 77.8% at the end of the year. Students cited workload and busywork as factors that caused burnout and faculty/classmate support, extracurricular events, and a sense of community as factors that prevented burnout. The major factor that alleviated burnout was time off from training.

### **Conclusions**

Our data indicates that burnout increases during each year of medical school. Additionally, first-year students started medical school with high levels of burnout, which is a unique finding [3]. Interventions should therefore focus on alleviating burnout at the onset of medical education. Limitations include our cross-sectional design at a single institution and our low response rates.

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### **Oral Abstract 24 - The NYU Winthrop Faculty Scholars Program: Embracing Life Long Learning**

<sup>1</sup>J. Nonailada, <sup>2</sup>B. Nicolas

<sup>1</sup>Stony Brook University School of Medicine, <sup>2</sup>NYU Winthrop Hospital

### **Objective or purpose of innovation**

NYU Winthrop Hospital, the clinical campus of Stony Brook University School of Medicine, has had a Faculty Scholars program in place since 2012. Although rich in content about teaching and learning, the program was lacking in research content, with little evidence of participant contribution to the medical education knowledge base. In response, we have revised our Faculty Scholars program, extending duration from 12 months to 18 months, and adapted course content to accurately reflect the needs of our scientific agenda and patient care community, while incorporating past participant feedback on the program. This submission expounds upon findings to date and future directions of this 'work in progress'.

### **Instructional methods and approach**

Many physician faculty find difficulty engaging in scholarly activity as increased institutional productivity requirements and growing complexity of patients' disease state increase day to day demands. Additionally, balancing other life roles poses a challenge to commit to ongoing professional development activities. In order to be perceived as scientific leaders in our respective medical practices while also upholding professional responsibility, it is essential that our NYU Winthrop physician faculty embrace lifelong learning through scholarly activity.

### **Educational Outcomes**

12 junior physician faculty are currently enrolled in our Faculty Scholars Program. Interactive class sessions are taught by senior physician faculty at our campus along with independent learning assignments. Content includes learning theories, electronic-learning technology applications, teaching portfolio construction, instructional design modalities,



student/self/program evaluation, research design/analysis, publication of educational research and effective academic leadership/mentoring competencies. Concurrently, each participant is required to conduct an independent educational research study yielding peer-reviewed publication. To assist with the existing gap in producing publications, our revised program now includes a session taught by our campus library director, with guided instruction on using PubMed, SCOPUS, and CINAHL to conduct literature searches. Furthermore, participants must submit a written literature review, summarizing past reports and arguing the relevance for their own research studies.

### **Strength of Innovation**

With the completion of 5 well-attended in-class sessions at the time of this writing, it is apparent that fundamentals of research are an area that many junior physician faculty require further training in. Incomplete literature reviews and participant verbal feedback revealed that our junior faculty are not adept at formulating research questions and literature search strategies. To address this knowledge gap earlier in the stage of medical training, we have decided to conduct a Resident Core Competency session this winter devoted entirely to searching and appraising literature. Participants of the Faculty Scholars Program will continue to be mentored as they move on to select methodology for data collection and analysis with their research projects. Finally, feedback will be provided to program participants' Department/Division Chairs in an effort to disseminate how we can incorporate increased basic research training for faculty development into all respective areas. This model of a faculty development program can be replicated in other institutions looking to advance the rigor of research curricula for junior faculty.

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## **Oral Abstract 25 - Personal and Contextual Factors which Shape Career Inflection Points: An exploratory Qualitative Study at 4 Institutions**

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### **Background or theoretic framework and importance to the field**

Efforts designed to help physicians in training successfully construct their careers are critical, given heightened concern about burnout, caused, in part, by personal conflicts in identity and work-life balance (1-2). To gain insight that will guide such efforts, we are conducting an exploratory qualitative study at four institutions to learn more about career inflection points, defined as events that fundamentally influence or alter career trajectories (3). Our aim is to understand if, and how, inflection points are by factors within the control of medical educators (e.g., events within the explicit curriculum, mentoring programs, etc.).

### **Methods**

With funding from the GEA, we conducted and transcribed structured interviews with 6 advanced fellows or junior faculty at each institution. After interviewees described an inflection point (4-6 total); follow up questions explored personal and contextual factors that shaped each event.

Consistent with constructivist grounded theory (4), we have initiated an iterative process of analyzing and conceptualizing themes.

### **Results**

Interviewees easily and articulately shared career inflection points, and sometimes are revered for their profound impact. "I think a lot about my narrative, about how it goes from start to finish." The influence of mentors is salient ("it's like this nebulous feeling, like, do I want to be like them?"), as is the impact of family values ("Both my parents are very much focused on giving back and helping people"). Some inflection points are specific events while others are more a reflective "noticing" of how a series of events unfolded

### **Conclusions**

Narratives about career inflection points, with information about typical triggers that foster career construction, can guide faculty charged with career counseling and institutions to better support trainees in their efforts to construct optimal careers in ever-changing health care contexts (5).

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**Oral Abstract 26 - The Value of Feedback From a Credible Source: Faculty Observations of Medical Students Learning How to Teach**

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Pennsylvania State University College of Medicine

**Objective or purpose of innovation**

Providing feedback on observations of teaching is an effective form of professional development across teaching disciplines. Cherasaro and colleagues (2015) reported that credibility of the observer was a significant factor for determining whether teachers would use observer feedback to improve their teaching. Our work is the first to detail an observation process to provide fourth year medical students with credible feedback during a Students as Educators elective.

**Instructional methods and approach**

Experienced volunteer faculty attend a required training session to review a modified feedback instrument (Newman et al., 2012) and frame the feedback process from the perspective of the learner as described by the "Educational Alliance" model (Telio et al., 2015). Each student is observed facilitating their assigned session. During each observation, faculty focus on specific criteria related to the Learning Environment, Learner Engagement, and Teaching Methods using the "Student Educator Feedback Tool." After the observation, the student and observer meet. Each medical student then writes a reflection describing how or whether they will use the feedback.

**Educational Outcomes**

23 faculty members are trained observers. Students and faculty members shared positive feedback about the observation process. Many students commented on how feedback confirmed areas of strength that they had already identified on their own. Consistent with the literature on feedback, students stated that it was helpful to get detailed feedback from faculty members invested in their success. A student who completed the elective will discuss the impact of that relationship in this presentation.

**Strength of Innovation**

Information from a variety of sources is used to make adjustments throughout the development of the observation process. For example, observers gathered to revise the original observation tool for the second year. Steps will be explored to support ongoing relationships between observers and students as they use the feedback received.

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**Oral Abstract 27 - Effect of Fellows as Medical Educators (FAME) Curriculum on Pediatric Subspecialty Fellow Teaching Skills**

K. Ang, P. Weiss  
Yale School of Medicine

**Objective or purpose of innovation**

The purpose of the FAME curriculum is to enhance pediatric subspecialty fellow teaching skills.

**Instructional methods and approach**

The majority of pediatric fellows remain in academic positions in which teaching trainees is an essential skill. Medical education curricula are limited in fellowship training and the specific skills required to be a successful educator as faculty are unclear. In addition, many residency programs would benefit from increased teaching by subspecialists.

### **Educational Outcomes**

A needs assessment was conducted through focus groups of junior faculty to identify the most important education skills. Based on this, a 6-month long curriculum was created, accepting 10 pediatric fellows into the pilot year (September 2017-February 2018). The program includes dedicated mentors for each fellow, didactics and experiential components. For the latter, fellows perform 5 learning activities, including videotaped lectures, and the choice of small group teaching, ward teaching, and/or a durable educational product. Assessments include self-reflection and feedback from learners, a peer, and a mentor.

### **Strength of Innovation**

The impact of the curriculum is being studied using pre- and post- objective structured teaching encounters (OSTEs), the physician teacher self-efficacy questionnaire (PTSQ), and the clinical teaching self-assessment instrument. Baseline OSTEs focused on giving feedback, orienting a learner, and teaching during the busy clinical encounter had scores of 51.7%, 66.4%, and 90% respectively. The average baseline PTSQ and clinical teaching self-assessment scores were 58% (37/ 64 points) and 77% (92/120 points). Post-assessment tests and focus groups will be conducted in January 2018.

This is the first fellow medical education curriculum to feature both workshop and experiential components with assigned mentors along with focus groups and objective data to assess efficacy. Improving the quality and quantity of education provided by fellows to trainees has synergistic short and long-term benefits. Increasing the number of study sites and medical specialties are a future aim in order to increase generalizability of results.

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### **Oral Abstract 28 - The National Resident Matching Program Code of Conduct: What is the Degree of Compliance During the Urology Match Process?**

E. Sebesta, M. Lipsky, M. Nunez, K. Cooper, G. Badalato  
Columbia University College of Physicians and Surgeons

#### **Background or theoretic framework and importance to the field**

The Urology Residency Match Program is highly competitive, with top medical students applying for limited spots. According to the National Resident Matching Program's (NRMP) Code of Conduct, program directors (PDs) and faculty should not (1) ask coercive questions; (2) "solicit nor require post-interview contact"; nor (3) require second-look visits. Anecdotally, violations of these rules occur, but there is minimal data to substantiate such events. The goals of this survey were to assess the frequency of "illegal questions" during interviews, to determine the incidence and type of post-interview communication and how this affected applicants' ranking of residency programs.

#### **Methods**

We conducted a 21-question post-match survey sent to 285 applicants to our program for the 2017 match. Questions included the following topics: illegal/coercive questions, post-interview communication, second-look visits, and the applicants' perceived impact of these factors.

#### **Results**

A total of 166 responses were obtained (response rate 58%), representing 39% of all candidates to submit a rank list. 96/166 (58%) reported receiving follow-up communication from at least one program, the majority from multiple programs. 44/96 (46%) felt communication positively influenced their ranking; 19% felt misled to believe they had a higher chance of matching at a program. 50/166 (30%) of respondents did a second-look visit at one or more programs, and 44% felt obligated to do so in order to match. Finally, 141/166 (85%) of applicants reported illegal questions were asked during interviews, including questions regarding personal life, rank list, and other interviews. 32% were asked specifically which program they would rank first.

#### **Conclusions**

During the 2017 Match, a high proportion of urology applicants experienced violations of the NRMP Code of Conduct. Violations included illegal questions, post-interview communication, and pressure to do second-look visits. These findings corroborate anecdotal reports, and may provide the groundwork to improve the fairness of the residency

application process for the future.

## References

Please list references below.

N/A

### **Oral Abstract Presentation 29 – Medical Students Perception of Behaviors in the Clinical Learning Environment Evolve with Increasing Clinical Exposure**

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Stony Brook University School of Medicine

#### **Background or theoretic framework and importance to the field**

Perceptions of the learning environment and learner mistreatment are areas of interest in the Association of American Medical Colleges' Graduation Questionnaire and the Liaison Committee on Medical Education accreditation standards. Whereas awareness of inappropriate behaviors and the mechanisms by which trainees report these behaviors have increased, the incidence of such behaviors remains concerning (1). A prevalent behavior that continues to emerge from survey data is public humiliation of trainees.

#### **Methods**

We developed the WESMILE program (We Can Eradicate Student Mistreatment in the Learning Environment) to address the issue. As part of this approach to training medical students, residents and faculty to recognize and reduce inappropriate behaviors in the learning environment, we created a series of video-based vignettes (2). We presented these videos to medical students in transition courses at three stages of their training: transition to medical school (n=136), transition to clinical care (n=131) and transition to residency (n=70). Following an introductory presentation on the criteria for classifying an incident as mistreatment and how to report such an incident, we presented three video-based scenarios. We administered a survey asking students whether or not they perceived mistreatment in each of the scenarios and to explain why.

#### **Results**

Quantitative analysis of responses to two video vignettes demonstrated that the responses of students correlated directly with increased clinical exposure. Chi-square tests demonstrated that differences in perceptions of mistreatment existed at different levels of training (P=0.001). Additionally, we reviewed students' narrative responses qualitatively to determine whether specific themes emerged. Qualitative analysis of students at different stages of training displayed nuanced appreciation of body language and tone as contributing factors in determining whether a situation represented inappropriate behavior.

#### **Conclusions**

Our results demonstrate that students' perceptions of behaviors evolve with increased clinical exposure and are consistent with similar studies comparing medical students, residents, and fellows (3).

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### **Oral Abstract Presentation 30 - Building Medical Student Empathy and Reflection through a Medical Student-Led Debrief of Patients Hospitalization Experiences**

<sup>1</sup>I. Chua, <sup>2</sup>A. Bogetz, <sup>1</sup>M. Ottolini, <sup>3</sup>M. Lineberry, <sup>4</sup>M. Long, <sup>5</sup>R. Holbreich, <sup>5</sup>T. Kind, <sup>1</sup>P. Bhansali

<sup>1</sup>Children's National Medical Center, <sup>2</sup>Stanford University School of Medicine, <sup>3</sup>University of Kansas School of Medicine, <sup>4</sup>UCSF School of Medicine, <sup>5</sup>George Washington University School of Medicine and Health Sciences

#### **Background or theoretic framework and importance to the field**

Medical students practice in environments that increasingly value patient/family perspectives to evaluate the quality of their care. Patient feedback also influences students' empathy and professional identity. This study explored students' perceptions of the benefits and challenges of conducting patient-caregiver debrief interviews regarding their hospital care experience, and determined if this led to deepening of student reflection.

#### **Methods**

We conducted a multi-institutional, mixed-methods, cluster randomized trial of pediatric clerkship students. Intervention students conducted a debrief interview and completed a written reflection on the experience. Control students completed a written reflection on a memorable patient encounter. Three blinded authors scored the written reflections using the 4-point REFLECT rubric, followed by chi-square test analysis. Intervention group students were also invited to focus groups to explore the benefits and challenges of conducting the debrief interviews. Themes were iteratively and inductively derived using principles of phenomenology.

### **Results**

Ninety-six essays (51 control, 45 intervention) were scored. 50% of controls scored 3 or 4 compared to 69% in the intervention group; 4% of controls scored 4 compared to 33% in the intervention group [ $X^2(3, N=96) = 15.4, p = 0.001$ ]. Sixty intervention group students participated in seven focus groups, identifying 5 benefits and 2 challenges of conducting the interviews. Benefits were helping students: (1) humanize patients and appreciate social/environmental influences on patient health, (2) assess caregiver/patient understanding about their care to correct misunderstandings, (3) actively involve caregivers/patients in treatment plan development, (4) engage patients in active expression of questions/concerns, and (5) value students' own role on the healthcare team. Challenges were: (1) lack of knowledge to answer questions about patients' diagnoses, and (2) discomfort responding to caregiver/patient frustration, anxiety or sadness.

### **Conclusions**

Medical student-led patient debrief interviews offer a unique approach to build medical student empathy, deepen self-reflection and improve communication and engagement between caregivers, patients and healthcare teams.

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## **Oral Abstract 31 - Intersections between Perceptions/Mechanisms of Academic Integrity and Professional Identity Formation**

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### **Background or theoretic framework and importance to the field**

Establishing an educational culture fostering professional identity formation is an increasing focus in medical education. Academic integrity is an important component of professional identity. This study considers student perceptions of intersections between academic integrity and professional identity formation.

### **Methods**

To evaluate a policy change about exam-taking practices, a survey was administered to first and second year students at Columbia University College of Physicians and Surgeons. The survey included items gauging perceptions of a variety of exam practices and their association with academic integrity. Responses to closed-ended items were summarized and responses to open-ended items thematically coded.

### **Results**

125 first-year and 93 second-year students completed the survey. Regarding level of concern about academic integrity of classmates in different exam settings, students were most concerned about take-anywhere, time-flexible exams, with 20% of M1 and 27% of M2 students falling in the somewhat to extremely concerned range. Regarding adherence of classmates to the Honor Code in different exam settings, M1 and M2 students generally reported adherence above 90% across proctored/unproctored, time-flexible/set-timeframe, and take-anywhere/in-classroom settings, with one exception of M2 students reporting 88% of their classmates follow the Honor Code in take-anywhere, time-flexible exam settings. Across M1 and M2, a majority of students' open-ended comments about flexible exam practices shaping integrity indicated that there is a positive impact/association, though the proportion of positive perceptions was higher among M1 than M2 students.

### **Conclusions**

This study shows that student understanding of exam practices and academic integrity contribute to learning culture and professional identity formation. They suggest that academic policies have a powerful impact on the learning environment as it cultivates students' integrity, strengthening their professional identity. Study limitations include that surveys were administered once. Follow-up surveys to enable comparisons between responses based on time elapsed and experience will be administered, analyzed, and presented along with the original survey data.

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## **Oral Abstract 32 - Multi-Phased Pilot of a Workplace Based Assessment for the Oral Presentation Entrustable Professional Activity During the Core Pediatric Clerkship**

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### **Objective or purpose of innovation**

Entrustable Professional Activities (EPAs) are suited to Workplace Based Assessments (WBAs) and entrustment decisions, but tools are not readily available. This project sought to develop, launch, and make iterative changes to a WBA for medical students' oral presentations (EPA 6), based on qualitative feedback from a pilot in the pediatric emergency (PEM) portion of Columbia University Medical Center's (CUMC) pediatric clerkship.

### **Instructional methods and approach**

The EPA Working Group at CUMC drafted a WBA for oral presentations, utilizing EPA and Physician Competency Reference Set language. The tool queries trustworthiness and includes an ad hoc co-activity supervisory scale modeled after the Ottawa Scale. We collected Phase I feedback from content experts and PEM physicians. After revisions and faculty development, we launched our pilot, gathering student and faculty feedback at regular intervals. Phase II feedback included a session hosted by Columbia's Center for Educational Research and Evaluation with 14

medical students and one-on-one sessions with 5 key PEM stakeholders.

### **Educational Outcomes**

Phase I feedback centered on semantic concerns. Language was revised to focus on specific, observable behaviors; to be less “judgmental”; and to define educational terms. Phase II feedback included logistical and content concerns. Participants had difficulty interpreting the double- and triple-barreled anchors of the EPA scale; expressed a desire to include elements of EPA 2 (Prioritizing a Differential Diagnosis); voiced concerns over trustworthiness assessments; and requested clarifications of the supervisory scale. We are currently in process of revising the tool to address Phase II feedback.

### **Strength of Innovation**

Launching an EPA-based WBA requires iterative revisions based on expert and key stakeholder feedback. Lessons from our WBA pilot may inform development of EPA WBAs across the medical education spectrum. Next steps in tool development include assessments of validity and reliability.

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## **Oral Abstract 33 - Modeling Integration: Co-teaching Basic Sciences and Clinical Medicine in the Classroom**

J. Willey, Y. S. Lim, T. Kwiatkowski  
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

### **Objective or purpose of innovation**

Calls for revision in undergraduate medical education (UME) cite the integration of basic and clinical sciences and the use of active pedagogies.<sup>1</sup> Many active learning pedagogies are rooted in constructivism,<sup>2</sup> which supports the rationale for content integration: learning is optimized when content (in this case, basic science) can be applied immediately to a real-life situation (patient care).

### **Instructional methods and approach**

An overlooked issue is the need for basic scientists and clinicians to communicate the importance of both disciplines and model productive collaboration.<sup>3</sup> In developing an infectious disease course at the Zucker School of Medicine at Hofstra/Northwell, scientists and clinicians used a guided inquiry approach in both solo- and interactive co-teaching.<sup>2</sup> Interactive co-teaching involves two instructors with complementary expertise in the same space and time. This study sought to determine if interactive co-teaching helped students integrate and learn basic and clinical sciences, as well as to explore potential advantages and barriers to co-teaching in UME.

### **Educational Outcomes**

Results of student surveys showed that a significant majority of students (92%) reported they understood the connection between basic and clinical science better when sessions were co-taught. In addition, a significant majority of students indicated that co-teaching provided a better overall learning experience (81%), was more engaging (74%), and made it easier to apply content (74%). These positive perceptions were reflected in better exam outcomes for material covered in co-taught over solo-taught sessions.

### **Strength of Innovation**

While these results suggest co-teaching is valuable for students, the application of interactive co-teaching pedagogies requires careful planning and cooperation amongst faculty. Some of the challenges that must be addressed for successful co-teaching include the development of careful coordination between faculty, the provision of time for preparation, and a deep willingness of both faculty members to engage in this pedagogy.

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**Oral Abstract 34 - Beyond the Medicine SubInternship: Six Years of Experience with an Advanced Hospitalist Elective**

E. Esquivel, L. Greisman, S. Katz, B. Leppert, A. Vien, A. Tang, A. Baduashvili, T. Cutler, A. Evans  
Weill Cornell Medical College

**Objective or purpose of innovation**

The transition from medical school to residency is a difficult period for many trainees. Many students feel inadequately prepared for the skills of an intern. The AAMC recently released 13 entrustable professional activities that medical students should have completed on day one of internship, but many students feel unprepared despite having completed required subinternships. We, therefore, have developed an advanced elective course that offers students the training in the key skills to succeed as an intern.

**Instructional methods and approach**

The Advanced Hospital Medicine Elective is a two-week elective course for fourth year medical students during which students are assigned to a general medicine service with an attending physician, and no resident supervision. Students are responsible for all patient care tasks from the time of admission till discharge. Students are assigned 4 to 8 patients to follow on a daily basis and are expected to fulfill all the roles subsumed by interns. They develop their daily plans of care and are charged with placing all orders, co-signed by their attending physician.

**Educational Outcomes**

Over the past 6 years, 107 medical students have elected to enroll in this elective. Nine faculty members have served as attending physicians. Surveys of 75 students indicate that the majority felt that the absence of resident involvement was critical to individual growth. Over 90% of students agreed or strongly agreed that the elective helped them with clinical decision-making, time management skills, discharge planning and interprofessional collaboration. Over 80% of students enrolled planned on an Internal Medicine residency; however, all students highly recommended the elective to students.

**Strength of Innovation**

The Advanced Hospital Medicine Elective is a unique educational innovation that offers students the level of responsibility critical for preparation for internship year. We believe that it addresses ongoing concerns about the transition from medical student to resident that programs nationwide are struggling with.

**References**

N/A

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**Oral Abstract 35 - Emergency Medical Technician certification in UME: Long Term Impact**

J. Brenner, T. Kwiatkowski, E. Schlegel, W. Rennie, V. Pappasodero, J. Bird, S. Ginzburg, J. Willey  
Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

**Objective or purpose of innovation**

In response to the Carnegie Report, many schools have incorporated early clinical experiences into their curricula. In considering different opportunities, we turned to Harrison et al<sup>1</sup> who first suggested Emergency Medical Technician (EMT) certification as part of undergraduate medical education. The Zucker School of Medicine became among the first to formally integrate EMT training and certification into the first year of UME beginning with our 2011 inaugural class. From the Person to the Professional: Challenges, Privileges and Responsibilities (CPR)<sup>2</sup> was developed as the initial course for students at the Zucker SOM, organized using the New York State Department of Health (NYSDOH) EMT curriculum as its framework.

**Instructional methods and approach**

In keeping with the educational theory of cognitive apprenticeship,<sup>3</sup> basic EMT concepts and skills were integrated with foundational systems-based physiology, structural science, pharmacology, communications skills, history-taking, physical examination, and bedside ultrasound. This augmented EMT curriculum, inclusive of weekend and evening ambulance runs, enabled students to experience early professional development. Students encountered patients as people living in their home environments, and thus interacted with social determinants of health first-hand.

**Educational Outcomes**

Five years after first incorporating EMT certification, we developed a survey to understand the long-term impact of this experience on our learners. Qualitative and quantitative measures were obtained from the Class of 2016 one year after graduation and 2017 at the time of graduation. Data showing that a plurality of students reported the EMT curriculum had both a short and long term positive impact spanning numerous areas, including the ability to work with other professionals, observe the continuum of care first-hand, develop a set of skills usable in urgent situations, and begin their professional identity formation.



## Strength of Innovation

Incorporation of EMT certification into UME provides students with exposures not easily captured by other clinical experiences and which are recognized immediately following and years after participating.

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## **Oral Abstract 36** - Internal, external and self-evaluation of the performance readiness of postgraduate trainees

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Rutgers, Robert Wood Johnson Medical School

### Background or theoretic framework and importance to the field

Program directors (PDs) use MSPEs as imperfect indicators of how a graduating student will perform as a resident(1). Examining the congruence between PD evaluations and MSPE ratings can help validate those ratings and inform a school's program evaluation. Convergent validity can be found in congruence between residents' self-evaluations and PDs rating. Alignment between faculty and student perceptions is important in facilitating resident learning and performance(2). The purpose of this study is to explore the relationship of internal (MSPE), external (PD), and self-evaluation of PGY-1 performance readiness.

### Methods

A retrospective survey was sent to the 127 graduates in one medical school class (67% responded). Identical items were sent to their PDs with an additional request to rate their resident(s) using the same scale as the MSPE global rating. Paired sample t-tests were conducted, comparing PD and school ratings (n=46) and comparing residents and PDs ratings (n=38).

### Results

PD's ratings were significantly higher than the MSPE ratings,  $t(45)=4.983$ ,  $p=.000$ . Resident's self-evaluations and their PD's evaluations were congruent on 11 of the 12 survey items. The exception was "sensitivity to patients and diversity." PDs' ratings (M=4.2) of resident sensitivity were significantly lower than residents' self-evaluations (M=4.6),  $t(37)=2.572$ ,  $p=.014$ .

### Conclusions

The UME/GME continuum is moving toward realizing the ideal of a seamless transition to residency through competency-based evaluation(3). Nonetheless, existing tools can provide data to inform program evaluation. The correspondence between learner and PD evaluations suggests that graduates have developed appropriate skill sets, with the discrepancy in patient sensitivity needing further investigation. Central limitations of the study are low response rate and possible response bias, but this study suggests that asking program directors and graduates for data provides another tool in the arsenal for validating internal ratings and exploring the relative program strengths.

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## **Oral Abstract 37** - Correlations of NBME Basic Science Subject Exams & Step 1 Scores Among Medical Student Subgroups

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<sup>1</sup>New York Medical College, <sup>2</sup>University of North Dakota School of Medicine and Health Sciences, <sup>3</sup>New York University Courant Institute of Mathematical Sciences

### Background or theoretic framework and importance to the field

A few studies have suggested that performance on NBME basic science subject examinations (BSSE) during pre-clinical years are good predictors of Step One scores (2,3). We sought to determine whether this would be the case within specific student groups at our institution.

### **Methods**

IRB: NYMC, L-11,671. Scores on Step One and seven NBME BSSE taken by students from the Classes of 2016, 2017, and 2018 were analyzed. Student groups were identified using AMCAS applications: sex, undergraduate major, post-baccalaureate and/or graduate program recipients, underrepresented in medicine (URM), and students who took two or more gap years before matriculating. The socioeconomically disadvantaged category included students who received application fee waivers (FAP).

Pearson correlation coefficients were determined to investigate the linear associations between performance on seven NBME BSSE and Step One amongst the entire sample of medical students and within specified student groups.

### **Results**

De-identified Step One (n = 575) and seven NBME BSSE (n-ranges: 532-557) scores were analyzed. Significant differences were discovered between the distributions of males' compared to females' scores on Step One (p = 0.0126), Pharmacology NBME (p < .0001), Pathology NBME (p = 0.0197) and the mean score on the Microbiology NBME (p = 0.0416). Among students in the socioeconomically disadvantaged group when compared to peers, there were significant differences between the distributions of scores on Step One (p < .0001), Microbiology NBME (p = .0093), and Pathology NBME (p = 0.0032). The distribution of Step One scores among students who were science majors differed significantly from non-science majors (p = .0025). When looking at the entire cohort, NBME BSSE in Microbiology (r = 0.71), Pharmacology (r = 0.75), and Pathology (r = 0.75536) were strongly correlated with USMLE Step One scores (p < .0001).

### **Conclusions**

Significant differences in distributions of BSSE and Step One scores were identified among various student subgroups.

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## **Oral Abstract 38 - Using MMI Comments for Medical School Admissions Decision Making**

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Albany Medical College

### **Objective or purpose of innovation**

Written comments have been examined for their unique contribution to performance evaluations during clerkship and residency, but comments provided by interviewers during the multiple mini-interview (MMI) have not been similarly studied. This study sought to examine whether comments themselves influenced admission committee decision-making.

### **Instructional methods and approach**

Five thousand interview comments from a subset of 625 de-identified medical school applicants interviewed in 2013 and 2014 were scored. Five study raters independently followed a rubric developed by the raters that outlined scoring assignments based upon the number of positive and negative statements made in the MMI interviewer comments. Each applicant was also evaluated for an outlier comment defined as an interview score that was 1.5 standard deviations from the mean score of all 8 scenario scores. Study raters also examined the presence of "unhelpful" or vague comments.

### **Educational Outcomes**

MMI numerical score strongly correlated with MMI comment score as evaluated by the raters (r = 0.91; p < 0.01). Importantly, both MMI comments and numerical MMI score contributed to overall committee score and acceptance to medical school. Presence of one outlier comment was detected in 279 of 625 applicants. Presence of one outlier comment score alone did not impact committee score or acceptance (p > 0.05). However, when extremely negative attributes were identified by study raters within an outlier comment, this was associated with a reduction of final committee score (p < 0.01) and higher incidence of rejection.

### **Strength of Innovation**

A strong correlation exists between the MMI comments and overall MMI score. Both MMI comments and MMI scores

predict acceptance to medical school. However, the qualitative information found in the MMI comments, especially when extremely negative outlier comments are identified, appear to play a critical role in the selection process at US medical schools.

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### **Oral Abstract 39 - Revising an Assessment System to Improve Student Long-term Learning**

A. Swan Sein, S. Martinez, J. Amiel  
Columbia University College of Physicians and Surgeons

#### **Objective or purpose of innovation**

Columbia modified its first semester assessment structure by utilizing evidence-based assessment best practices, including the philosophy of programmatic assessment(1). We wanted to take advantage of learning principles including the testing effect help to promote student learning(2), and to move more toward competency-based education practices(3).

#### **Instructional methods and approach**

Assessment system changes included:

- 1)Weekly formative problem set use, with multiple choice and open-ended questions provided prior to lectures. Students collaboratively worked through questions, but completed the questions independently via a closed-book electronic exam, to prompt the use of the retrieval practice learning strategy.
- 2)"Synthesis and Assessment Week" creation, with exams from each course scheduled during 3 exam weeks throughout the semester.
- 3)Post-Exam review sessions development, with students reviewing exam answers and learning from errors, to improve preparation for the next block.
- 4)Mastery-oriented summative exam development, requiring a minimum passing score of 70%, and immediate remediation and exam retake the following weekend, so students could learn from errors and be prepared to begin the next block.
- 5)Exam retake process revision, where failing students retook the same exams but wrote explanations of why the correct answer was correct.
- 6)Cumulative end-of-semester problem set development, for redoing questions so students could assess retention and restudy material.

#### **Educational Outcomes**

Student exam performance (means and failure numbers) did not change substantially from past years. Student feedback was generally positive, including liking the assessment week structure because the exam preparation did not compete with regular coursework as it has in the past. Faculty feedback was also generally positive, including that students seemed less stressed than in past years. Specific outcome data will be shared at the meeting.

#### **Strength of Innovation**

Changes for next year include preparing more rigorous context-rich questions for weekly assessments, creating more integrated assessment questions across courses, and continuing to refine the assessment retake process. Long-term impacts will continue to be evaluated.

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## **Oral Abstract 40** - Understanding what we say: varying cultural competency amongst faculty evaluators

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### **Background or theoretic framework and importance to the field**

Written comments by medical school faculty provide a foundation for grade narratives and deans' letters(1) and can play an important role in student's professional development(2). Previous work demonstrated students share understanding of helpful and unhelpful comments(3), however, little is known about the extent to which faculty share such an understanding of written comments.

We sought to understand the extent to which faculty agreed on the qualities of high- and low-quality written comments and the features they believed were characteristic of each type of comment.

### **Methods**

Twenty faculty who routinely evaluate third-year Internal Medicine clerks participated in a pile sorting task, sorting written comments into 'helpful' and 'unhelpful' comment piles. They were interviewed about how and why they had evaluated the comments. Multidimensional scaling (MDS) and cluster analyses were performed to describe how the participants organized their understandings of the narrative comments, and cultural consensus analysis was performed to examine the degree of shared knowledge about comment helpfulness. Each informant's degree of agreement with other informants, or competence, was calculated.

### **Results**

Stress, a measure of the goodness of fit of the data in MDS, was acceptable, suggesting that the data were well represented by the MDS. Initial findings from cultural consensus analysis indicated that there was no overall faculty consensus, however the sample's strong average competence was consistent with consensus. Further analysis revealed that two participants, both hematologists, exhibited negative competence. Dropping those two participants and rerunning the consensus analysis indicated that there was strong consensus indicating faculty shared beliefs about comment helpfulness.

### **Conclusions**

A specific group of faculty demonstrated consensus regarding characteristics of helpful and unhelpful comments. Future research could explore the distribution of that sharing. Limitations of this project include that the research was carried out in one geographical location and one university, and cannot be generalized to other areas.

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## **Oral Abstract 41** - Strategy for assessing need and developing a topical curricular thread addressing sexual and gender minority health

J. Encandela, N. Sitkin Zelin, M. Solotke, M. Schwartz  
Yale School of Medicine

### **Objective or purpose of innovation**

This project received last year's NEGEA Innovation Award.

The purpose is to: (1) assess medical school curriculum needs for sexual and gender minority health (SGMH) training; (2) develop/implement a strategy for faculty adoption of needed curricular components; (3) link components in an SGMH "sequence" over the full curriculum; (4) and evaluate program and learning outcomes (adoption, institutionalization, student competencies).

### **Instructional methods and approach**

A student-faculty team assessed curriculum needs using nationally established SGMH competencies that medical students "should be able to demonstrate by the time they graduate from medical school" (AAMC, 2014). We mapped competencies to our curriculum in fall 2014, identifying those that were addressed/unaddressed. We then devised

curriculum “pitches,” each focusing on the competency to be developed and possible teaching approaches and resources for faculty to develop content. Presenting pitches to faculty, we elicited their interest in adopting or enhancing curriculum components. Using a “diffusion of innovation” process (Rogers, 2009), we identified early, intermediate, and late adopters. We will discuss other principles and practices (e.g., “language of collaboration” rather than “demand”) involved in our strategy as well.

#### **Educational Outcomes**

Adoption: By 2017, 23 curricular components has resulted.

Institutionalization: Eleven components have been (or are planned to be ) presented three or more times since fall 2015, indicating beginning institutionalization. We are currently surveying all “adopters” to learn of plans for continuing or updating components and will present these results.

Student competency outcomes: We will provide examples of student competency measures and results per component, and are currently developing an approach to assess all SGMH competencies by the end of the entire sequence. We will provide an update in our presentation.

#### **Strength of Innovation**

Principles/practices by which we developed an SGMH sequence will be presented as an integrated strategy that demonstrates the ability for faculty to adopt and institutionalize curriculum in the midst of time and resource pressures.

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### **Oral Abstract 42 - A Student Affairs Podcast for Medical Students as a Novel Tool for Communication and Education**

N. Frayha, D. Parker

University of Maryland School of Medicine

#### **Objective or purpose of innovation**

In February 2017, the Office of Student Affairs (OSA) at the University of Maryland School of Medicine launched a podcast for medical students called The OSA Insider. This podcast explores topics relevant to medical student life and the journey to becoming a physician, featuring wellness strategies and information on major milestones of medical school. Its primary objective is to improve OSA communication with students.

#### **Instructional methods and approach**

Podcasts are increasingly common in medical education for the delivery of specialty-specific content in a fields like Emergency Medicine and Anesthesiology. However, podcasts from a Student Affairs perspective have been absent from the podcast landscape. The OSA Insider podcast represents an innovation within the community and an opportunity to reach out to medical students about issues of importance to them through a novel form of technology.

#### **Educational Outcomes**

Student input regarding a new Student Affairs podcast was solicited through focus groups and a survey. An Assistant Dean of Student Affairs, who has been trained formally in radio production skills, produces each episode based on this student feedback. There have been over 15 episodes, with new episodes airing every 2-4 weeks. Podcast episodes may be accessed through iTunes, Google Play, or the podcast's website,

<http://www.medschool.umaryland.edu/osa/The-OSA-Insider-Podcast/>.

#### **Strength of Innovation**

Strengths of this innovation include its novelty and its subjective evaluations. Listener feedback in the form of verbal comments and emails to OSA deans has been uniformly, enthusiastically positive. Thus far, the podcast has been downloaded more than 5,000 times. In November the OSA will survey listeners to solicit feedback regarding the podcast's perceived usefulness. The program can be maintained easily in future years; students have suggested dozens of topics, and the requirement for institutional resources has been minimal. Other schools may easily implement a similar innovation, though with greater investment of resources up front to purchase equipment and provide minimal training to hosts.

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### **Oral Abstract 43 - Assessing Collaborative Community Health Projects from the Community Partner Perspective**

E. Kuchinski, J. Townsend, C. Bevvino-Ring, A. Guillorn, A.Kardys  
Geisinger Commonwealth School of Medicine

#### **Objective or purpose of innovation**

Community Health Research Projects (CHRP) have been a cornerstone of Geisinger Commonwealth School of Medicine's (GCSOM's) M1 curriculum since the school's inception. CHRPs are intended to engage students with community partner organizations through year-long collaborative projects aimed at addressing an area health need. Student evaluations of CHRPs are collected through annual course reports; this study assessed effectiveness, value, and potential areas for improvement from the community partner perspective.

#### **Instructional methods and approach**

A ten-item survey was administered to 51 community partner contacts who were involved with CHRPs. The survey gauged satisfaction level and project effectiveness with Likert-type scale responses, and included open-ended questions allowing for free responses. Completed surveys were collected from 21 participants.

#### **Educational Outcomes**

When asked about their satisfaction working with students from GCSOM on a scale from 1 (very unsatisfied) to 5 (very satisfied), the mean response was a 4.00. 76% of respondents indicated that they were either "satisfied" or "very satisfied" with their experience working with GCSOM students.

When asked how well the CHRPs addressed health needs of the community on a scale from 1 (not at all) to 5 (exemplary), the mean response was a 3.86. 76% of respondents indicated that the CHRPs their organization participated in were "satisfactory" or "exemplary" in addressing the health needs of the community.

Community partner comments about ways to improve the CHRPs centralized around two major themes: more time to complete research, and more/better communication between the students, the agency, and the school. These identified areas of improvement mirror student evaluations of the CHRPs, which have also identified time and communication as areas that could be improved.

#### **Strength of Innovation**

This partner feedback, combined with years of student evaluation data, has inspired a faculty-driven effort to re-design this curricular element to span multiple academic years and involve closer, more frequent communication with and input from participating community partners.

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## **Small Group Discussions**

**Small Group Discussion 1** - Teaching Residents How To Navigate The Complex Systems Of Health Care Delivery: An innovative curriculum that not only improves clinical care but ensures proficiency in quality improvement, patient safety, and population health.

S. Mann, K. Huggett, M. Davidson, T. McNamara  
University of Vermont Larner College of Medicine

### **Rationale**

The ACGME requires residents to be trained in practice-based learning and improvement (PBLI) as well as systems-based practice (SBP)(1). One of the major challenges faced by residencies is developing and implementing a curriculum that provides adequate education for residents to prepare them for practicing in complex health care systems. One of the obstacles to teaching these skills is constructing and incorporating a multifaceted curriculum into an already jammed residency didactic program(2). We have designed a curriculum based on the exemplary care and learning system (ECLS) educational model(3) that has the targeted goal of ensuring trainees understand, critique and improve the process of health care in a real-world setting. This innovative curriculum involves a two-part longitudinal didactic and experiential approach that provides residents with the knowledge and skills necessary to complete a group QI project and provides the ultimate interprofessional experience with the implementation of residency accountable care dyads(ACDs) to address a clinical care issue impacting the patient population they serve. This curriculum includes validated assessment tools that are based on Kirkpatrick's model of evaluation.

### **Objectives**

- 1) Map specific components of their didactic curriculum to the milestones that directly relate to quality improvement(QI), patient safety(PS), and population health.
- 2) Learn about the different online resources available for designing a high impact didactic curriculum that will provide residents with the necessary skills to meet the triple aim of patient care.
- 3) Learn how the ECLS model can be used to design novel and innovative integrative approaches for providing an experiential QI/PS/population health component that can fit into any residency curriculum.
- 4) Learn about one institution's curriculum that incorporates a novel interprofessional component (accountable care dyads) that can easily be implemented into any residency program.

### **Methods and Session Format**

- 5 min Welcome/overview of the SBP/PBLI milestones that are applicable to each residency
- 10 min Introduction to the ECLS model and how it can be applied to QI/PS/population health education
- 5 min Current knowledge acquisition and application assessment tools for QI curricula
- 5 min Presentation of curricular resources for QI education
- 15 min Small group discussions with facilitators to discuss what strategies work for the development and assessment of a targeted triple aim curriculum.
- 15 min Small group presentations - participants share results of group discussions with a focus on developing a plan for seamless implementation of a QI/PS/population curriculum that can be immediately integrated into their residency.
- 5 min Wrap up - take home points, list of useful curricular resources and closure.

### **Experience**

Stephanie Mann, MD: Dr. Mann is a residency PD who is currently the PI for an institutional grant investigating how to optimize QI/PS/population education at the GME level.

Kathryn Huggett, PhD is Director of the Teaching Academy at the University of Vermont College of Medicine and is nationally known for her education research.

Melissa Davidson, MD is the DIO for our medical center and has extensive experience and expertise in curriculum design and assessment.

Tristan McNamara, EdD is a GME Educational Specialist with expertise in psychometrics and conceptual design of evaluation and assessment efforts.

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## **Small Group Discussion 2** - Teaching Professionalism and Humanism through Compelling Online Content: A Case Study of an Online Module on Relational Communication Skills

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<sup>1</sup>Stanford University School of Medicine, <sup>2</sup>Perelman School of Medicine at the University of Pennsylvania

### **Rationale**

While teaching factual information online has become commonplace, many medical training programs struggle to create online content that can meaningfully change the attitudes of medical students surrounding issues of humanism and professionalism (e.g., interpersonal communication, team dynamics, ethics and interprofessional collaboration). The Theory of Planned Behavior offers concrete tools for designing, assessing and revising online content that aims to influence real-world behavior by targeting learners' attitudes, perceived norms and self-efficacy. In this interactive small-group discussion, we will briefly review the Theory of Planned Behavior and then present a case study of its application, showcasing an online module for introducing medical students to interpersonal relational skills, developed collaboratively by the Center for Supportive Relationships and the Perelman School of Medicine at the University of Pennsylvania. These will serve as background for a group discussion about the different approaches participants take to designing and assessing online content for their students. This small group discussion is geared toward medical educators and administrators who seek to learn about and share their own approaches to using online content for changing student attitudes.

### **Objectives**

Participants will apply the Theory of Planned Behavior to (1) building online content for teaching professionalism and humanism, (2) assessing the effectiveness of the online content, and (3) revising the online content based on the assessment.

### **Methods and Session Format**

10: Introductions, background and rationale

10: Overview of the Theory of Planned Behavior

10: Case study (construction, evaluation, and revision of online module to teach relational skills)

25: Discussion

- How does your institution use online content to teach professionalism and humanism?
- What are strengths and growth areas in the way your institution assesses the effectiveness of this online content?
- How do you use assessment data to revise the online content?
- How can you use the Theory of Planned Behavior to improve the design, assessment, and/or revision of your online content?

05: Summary

### **Experience**

- Eran Magen earned his PhD in psychology from Stanford University and completed postdoctoral training in population health as a Robert Wood Johnson Health & Society Scholar prior to founding the Center for Supportive Relationships.
- Carolyn Fredericks, MD, is a Clinical Assistant Professor of Neurology & Neurological Sciences and an Educator for Care Associate at Stanford University School of Medicine.
- Horace DeLisser, M.D. serves as the associate dean for humanism and professionalism for the Perelman School of Medicine at the University of Pennsylvania.

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## **Small Group Discussion 3** - Learning for Now and Later: A practical approach to teaching students evidence-based learning principles

T. Felix, J. Meka

Pennsylvania State University College of Medicine

### **Rationale**



Throughout medical school, students participate in a variety of educational experiences to develop the knowledge and skills necessary to be successful physicians. While there is a large body of research that focuses on effective learning approaches, these evidence-based approaches are not typically included as part of the curriculum nor are many students aware of key strategies to support their learning in medical school. In this interactive session, we will discuss key evidence-based strategies to support student learning in both the pre-clinical and clinical phases while highlighting the effectiveness of co-teaching with clinician and learning specialist.

### **Objectives**

Participants will:

Examine ways to support cognitive skill development in students.

Discuss evidence-based learning strategies and how they can be incorporated into the curriculum to better support student learning.

Reflect on lessons learned in implementing teaching students about learning in the curriculum and individual work with students.

Create a plan for incorporating at least one evidence-based learning principle into practice in your work with student

### **Methods and Session Format**

Welcome and introductions (5 minutes; Felix)

Warm-Up Activity: Examining Evidence-Based Learning Principles (10 minutes; Meka) - This will be an interactive review of key evidence-based learning principles. Participants will complete an anticipatory guide to activate prior knowledge about learning principles. We will present an overview of the learning principles through participant discussion of the anticipatory guide.

Embedding Learning Strategies into the Curriculum - One Approach (5 minutes; Meka) - Overview of how we embedded these key learning principles into our curriculum (both pre-clinical and clinical) and determined frequency and distribution of principles.

Integration within the Clinical Clerkships (15 minutes; Felix) - Learning strategies activity with audience participation to demonstrate how these learning principles are put into practice in the clinical environment followed by a review of how strategies are revisited in the clinical phase.

Small Group/table activity and exploring opportunities at home institutions (15 minutes; Meka) - small group activity to reflect on opportunities for incorporating evidence-based learning principles into your existing curriculum and generating a plan for integrating one principle in your work with students.

Debriefing and Wrap-up (10 minutes; Felix) - volunteers share out ideas that are recorded as a group.

### **Experience**

Dr. Felix is a practicing Family Physician and currently oversees the clinical phase of medical student education, with a focus on clinical reasoning, evidence-based medicine and learner development and assessment.

As the Director of our Center for Excellence in Education, Dr. Meka provides comprehensive academic support for learners in the medical, graduate and physician assistant programs.

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**Small Group Discussion 4** - Challenges in teaching the clinical reasoning-based physical exam: review of the state of the art and discussion of future challenges with the innovators of the Core + Cluster Curriculum

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**Rationale**

The traditional physical exam curriculum involves teaching a head-to-toe (HTT) exam. The HTT is often taught in a non-hypothesis-driven manner, focusing on the mechanics and sequencing of maneuvers. However, the clinical purpose of the exam might not be emphasized, resulting in several potential drawbacks. Educators may miss out on opportunities to teach clinical reasoning skills. Lack of integration of the physical exam with history-taking decontextualizes both sets of skills and thus fails to leverage adult learning theory, which argues that the learner's motivation is enhanced when application of content learned is evident.

In 2014, members of this group described a novel, clinically applied model of teaching the physical exam and history called the Core + Clusters curriculum (C+C). This model employs a hypothesis-based approach to jointly teach the history and physical exam (H&P) that aims to promote clinical reasoning development. The C+C seeks to teach H&P in a manner that better resembles how clinical skills are used in actual practice while addressing adult learning theory and minimizing cognitive load.

**Objectives**

- Describe the different approaches to the clinical reasoning-based physical exam at various institutions
- Discuss current thinking about the further development of the clinical reasoning-based physical exam
- Discuss the challenges of extending the clinical reasoning-based physical exam vertically and across specialties

**Methods and Session Format**

5 min Introductions: Why did participants choose to attend this session?

15 min Presentation: summary of the Core + Cluster Curriculum and how it has been implemented in 3 medical school

30 min Discussion of key questions

1. How is clinical reasoning integrated into the physical exam at your school?
2. Should a brief core exam be streamlined to be useable on any clerkship?
3. How can a clinical reasoning based exam be vertically integrated? How many clinical presentations should be covered in a 4 year curriculum and when?
4. How can opportunities for deliberate practice be integrated into a busy curriculum?

10 min Wrap-Up Further discussion: What concepts from this workshop be applied to teaching physical exam at your school? What opportunities are there for inter-institutional research?

**Experience**

All speakers are the developers of the Core and Clusters curriculum--see Academic medicine reference.

**References**

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**Small Group Discussion 5** - Admission Isn't Access: Identifying Strengths and Challenges of First-Generation Medical Students to Improve Medical Education for a Diverse Student Body

<sup>1</sup>C. Havemann, <sup>1</sup>R. Russell, <sup>2</sup>R. Marcellon, <sup>2</sup>F. Huertero, <sup>1</sup>K. Lomis, <sup>2</sup>H. Mason  
<sup>1</sup>Vanderbilt University School of Medicine, <sup>2</sup>Albany Medical College

### **Rationale**

Although measures like the AAMC Holistic Review Initiative, and the addition of the First-Generation College Student Indicator to the 2018 AMCAS application, empower admissions offices to recognize the excellence of a diverse student body (1), admission alone does not always level the playing field between students. First-generation medical students (FGMS), whose parents have not obtained a four-year college degree, often demonstrate a host of desirable traits for a physician, such as grit and innovative thinking, as well as unique insight into the complex health disparities facing the U.S healthcare system. However, cultural and social capital - defined as the fluency or familiarity that one has with the dominant culture of a society, and the resources that are linked to/transmitted through group membership, respectively - may be in short supply for FGMS. Continuing generation students, whose parents have at least a bachelor's degree, have greater access to social and cultural capital through institutions and relationships associated with their parents' high level of education. Without these resources, FGMS may struggle academically, encounter barriers unseen by their continuing generation counterparts, and suffer from imposter syndrome (2,3). Although programming for FGMS is an increasing focus at the undergraduate level, there are few models for programming in medical school that specifically supports these students in their educational pathway, or prepares medical schools to receive them. As an underexplored area in medical education, this represents a significant opportunity to retain, support and optimize outcomes for FGMS.

Medical educators attending this session will consider strategies to promote equity for FGMS, who are disproportionately students of color. FGMS will shed light on their educational journeys and answer questions like "Why didn't this student ask us for help sooner?" Participants will leave with a persuasive rationale for making first-generation student support a priority.

### **Objectives**

Describe working definitions of "first-generation medical student," and which definition is used in the 2018 AMCAS.

Describe unique strengths that FGMS bring to medicine, and distinct challenges that they experience upon transition into medical school.

Describe current programs for FGMS, and what needs they are addressing.

Consider unmet needs of FGMS in the areas of mentoring, academic/career counseling and programming at participants' institutions.

### **Methods and Session Format**

25mins:

- Icebreaker to prompt initial reflection, define audience
- Vignettes/anecdotes to frame the issue
- Group feedback on themes/challenges faced by FGMS
- Brief overview of literature

30mins: Discussion + Q&A

- Review of existing programs
- Participants to consider home institutions using needs assessment tool
- Discuss findings, potential for shared resources, ideas

5 mins: wrap up

- Handouts with citations, key points, etc

### **Experience**

Catie Havemann is a first-generation medical student at Vanderbilt University.

Roselande Marcellon is a first-generation medical student at Albany Medical College

Fredy Huertero is a first-generation medical student at Albany Medical College.

Hyacinth Mason, PhD is the Assistant Dean for Student Support and Inclusion at Albany Medical College.

### **References**

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### **Small Group Discussion 6 - Beyond Powerpoint For Free!**

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#### **Rationale**

The blackboard was around for >100 years and then was replaced by a whiteboard and overheads. Over and over again, one technology supplants another older one but many teachers are rooted in technology that is superior to Powerpoint which is just a different version of a slide. The Millennial generation has grown up with this type of technology. It is not new to them and in fact, many think it has always been around and cannot conceive of a world without it. However, a teacher that does not 'keep up with the times' and does not learn about this technology is in danger of losing his/her audience - ie the students. Educators need to learn various modalities of teaching for today's student. Participants will learn how to re-purpose existing technology they already use for new uses and will also learn about some new technology that can be easily used for educational purposes. This is all available at no cost to the educator but can help re-invigorate the classroom and technology can not only keep the learner interested in the subject matter but can also possibly enhance learning.

#### **Objectives**

1. Learn about different learning styles
2. Explore free programs available to any educator
3. Examine these free programs for a real-world situation in learning
4. Appraise practical examples of use of this technology

#### **Methods and Session Format**

10 min - Introduction and Background Review

10 min - Discussion with audience of 1st re-application of a technological tool with a demonstration of its practical use

10 min - Discussion with audience of 1st free technological tool with a practical demonstration

10 min - Discussion with audience of 2nd free technological tool with demonstration

10 min - Discussion with audience of 3rd free technological tool with demonstration of a practical use

10 min - Suggestions of Future Directions and Conclusion

#### **Experience**

Nagaraj Gabbur - Program Director and former Clerkship Director and has published and presented on educational topics regionally and nationally.

Anar Yukayev, MD, PGY4 Ob/Gyn Resident - Has an interest in teaching and integrating technology into teaching. He has helped with integrating technology into the residency program

Michele Haughton - Director of Medical Education and not only teaches medical students but has also presented on teaching regionally and nationally

#### **References**

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## **POSTERS**

### **Poster 1** - Preclinical Education About Leadership in Patient Safety & Quality Improvement

D. Friedman, S. Soo-Hoo, L. Chen  
Columbia University College of Physicians and Surgeons

#### **Objective or purpose of innovation**

The SLIM (Systems, Leadership, Innovation, Management) educational thread is a student-driven curriculum that seeks to empower students to become physician-leaders who will shape the future of healthcare delivery. The national spotlight on healthcare has sparked student interest in health systems science.

First-year Columbia students begin developing professional identities and observing physician-patient interactions through weekly shadowing of clinicians (“clerkships”). We built on this successful clerkship model by piloting a “specialized” clerkship featuring physician-leaders in patient safety or hospital operations. This experience aims to foster an appreciation of the complexities of the healthcare system that transcend medical specialties, and help students prepare to transform medicine in an evolving healthcare landscape.

#### **Instructional methods and approach**

Thirty-one students applied for two openings. For twelve weeks, students spent one hour with a hospital-leader discussing his/her career path and responsibilities, followed by a two-hour clinical observation. One week, students met with the Associate CMO before shadowing the Medical Director of the cardiothoracic ICU. We recruited 28 clinicians and hospital-administrators, including three “champions” who handled logistics and will ensure program sustainability.

#### **Educational Outcomes**

AAMC EPA 13 encourages competency in students’ ability to “Identify System Failures and Contribute to a Culture of Safety and Improvement.” With a growing emphasis on quality improvement initiatives in residencies, it is critical to train preclinical students to identify system flaws and understand how clinicians can foster process redesign. Students participating in the pilot remarked that early introduction to patient safety and quality improvement measures have enabled them to consider systems relationships and provide better care during their clinical rotations.

#### **Strength of Innovation**

We must increase clerkship spots to satisfy student demand; however, the intrinsic program structure makes this logistically challenging. Furthermore, students report difficulty developing longitudinal relationships with providers.

This clerkship serves as a foundation for future “specialized” clerkships that explore medicine beyond the standard “treatment and diagnosis” approach.

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### **Poster 2** - Increasing Awareness of Screenings to an Underserved Population at a Medical Student Run Clinic

S. Gambino, R. Dougherty, C. Crilly, P. Nauka, H. Zylberberg  
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

#### **Background or theoretic framework and importance to the field**

Quality improvement (QI) involves continual learning and provides physicians with essential skills needed in patient care. Teaching students about quality improvement early in their professional careers can lead to improved outcomes in patient populations. The Zucker School of Medicine at Hofstra/Northwell’s free

clinic allows students to serve as care-providers to patients with lower socioeconomic status. Students must be aware of screening guidelines and advocate for their patients to receive age-appropriate screens. Currently our clinic does not have a standard screening tool to assess our patients' preventive care status.

### **Methods**

Assess patients' adherence to recommended age-related screening tests, including colon cancer screening, mammogram, and hepatitis C screening, before and after intervention in our clinic. As students, we want to challenge ourselves to practice essential skills necessary to increase adherence to these screens.

The approach involves screening patients attending our clinic with a questionnaire asking for patients' previous screening history. If indicated, an on-site HCV antibody screen for hepatitis C, and/or information for the NYS Cancer Service Program for free colon cancer screen or mammography will be provided. Our project will last six months and feature a three-month check-in, assessing patients' screening status after our intervention.

### **Results**

We predict that few of our clinic patients have received age-related screening tests. Following intervention, we will see a 15% increase in the percentage of patients receiving these tests. We expect to see a similar percentage of patients receiving screening in our clinic compared to other student-run clinics and/or practices throughout Northwell Health.

### **Conclusions**

Impact including Dissemination Plan Our project will result in increased awareness and proper screening for current and future patients. It will also increase students' problem-solving skills to find inventive ways to increase the favorable outcome. Our results can be presented at national conferences to pave the way for other schools to implement similar changes.

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### **Poster 3 - Patients As Teachers**

G.Alvarez, L. Strano-Paul, W.-H. Lu  
Stony Brook University School of Medicine

### **Background or theoretic framework and importance to the field**

Medical education is changing and students in pre-clinical years have stated that they want more patient contact, earlier in medical school. Studies have discovered that patients can become mentors to students over time and provide a point of view that is not seen in a lecture based pre-clinical medical education. Students often view patients only as cases or problems that have constraints, when in reality patients are more complex. Altering the cases to center around real patients can provide students with a different, more inclusive perspective.

Challenges have arisen from bringing in patients to teach, the most serious of which is the fact that patients usually do not know how their involvement fits in the larger curriculum. Communication between professors and patients exist to make sure objectives are met, but it does require an extra level of responsibility from the two parties.

### **Methods**

In order to measure the effect of Patients as Teachers, our research discovered a 27 item peer reviewed survey that measures patient centeredness. The Self Efficacy in Patient Centeredness Questionnaire SEPCQ-27 has been used internationally, at the resident level. The Patient Practitioner Orientation Scale (PPOS) will be also used as a baseline control with other Stony Brook Medical students from the past and will be given alongside the SEPCQ-27. Students will also be asked to submit written reflections periodically regarding the impact of specific patient encounters.

### **Results**

The students who participated in our surveys have a general positive view of bringing patients into the pre-clinical medical education, highlighting that they feel better that time is allowed for these sessions and that they took more about the patient experience in medicine through these interactions.

### **Conclusions**

The development of Patients as Teachers at Stony Brook University School of Medicine has successfully integrated relevant patient encounters in courses that supplement pre-clinical course material.

### **References**

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### **Poster 4 - Utilizing a Surgical Intensive Care Setting for Interprofessional Education of Healthcare Students**

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### **Background or theoretic framework and importance to the field**

Intensive care units rely on accurate exchange of knowledge and efficient task delegation to improve outcomes and avoid complications. Within healthcare education, exposure to team-based practice is essential for training future healthcare providers.

A pilot educational program for healthcare students using an inter-professional (IP) approach was conducted in a surgical intensive care unit (SICU). The objectives of this activity were to assess communication skills, delineate roles, exchange knowledge, and develop teamwork among students during an experiential rotation.

### **Methods**

Medical (M), physician assistant (PA) and pharmacy (Ph) students were teamed during experiential rotations in a SICU to develop a comprehensive patient care plan (CPCP). Each team presented their CPCP on morning rounds.

A post-activity survey assessed students' self-reported changes in knowledge and expertise based on their IP experience. Six statements were listed and accompanied with a 5-point Likert scale. Students reflected on their experience qualitatively and evaluated their communication skills. The data were analyzed using a mixed methods approach.

### **Results**

A total of 32 students (8 M, 8 PA, 16 Ph) participated in the program. 31/32 (97%) students agreed that the activity increased their communication skills, understanding of their roles, and their knowledge. All students agreed that this exercise increased their clinical application skills, and ability to work on a healthcare team. 26/32 (81%) students improved their ability to create a comprehensive healthcare plan. Qualitative responses emphasized student interest in more IP interactions and a need for communication skills enrichment among Ph students.

### **Conclusions**

This IP model can teach and promote effective teamwork, enhance knowledge and improve communication among future healthcare providers. The majority of students from 3 healthcare professions attested to the efficacy of this strategy. The discrepancy in communication skills among Ph students is likely multifactorial and could benefit from more frequent IP skills training similar to this pilot exercise.

### **References**

Please list references below.

N/A

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### **Poster 5 - Talking to Patients about Hope: Transforming Wish into Action**

F. Corpodean, B. Blatt

George Washington University School of Medicine and Health Sciences

### **Objective or purpose of innovation**

A good doctor-patient relationship is often crucial to achieving desired clinical outcomes (Razzaghi and Afshar, 2016). One of the most important things that patients want from their doctors is hope. Studies show that patients, especially those with terminal diagnoses, have high expectations of how physicians can help them feel more hopeful (being realistic, facilitating coping with dying, providing up to date information, giving second opinions) (Toh, 2011). However, though patients expect physicians to give them hope, there are no practical published communication guidelines to help physicians with this difficult communications challenge. Our presentation addresses the problem with a practical, evidence-based approach to fostering hope. The Hope Communication Guide fits within the framework of the medical interview and doesn't require a lengthy separate conversation.

### **Instructional methods and approach**

Four hope-generating approaches, reported in the psychiatry literature (Griffith, 2014), have been adapted into a communications guide for use with medical patients. They are: individual problem solving, relational coping strategies, mobilizing core identity, and realistic goal-setting strategies. The Guide and practice scenarios will be presented to illustrate application to clinical practice.

### **Educational Outcomes**

The main outcome is a brief, practical framework that students, residents and practicing physicians can use to counter demoralization and inspire resilience in their patients. The end goal is improving overall patient satisfaction and perhaps, indirectly, improving clinical outcomes.

### **Strength of Innovation**

The proposed Guideline builds on existing literature by creating a model for fostering hope derived from studies in cognitive and social psychology, psychosomatic medicine, and palliative care medicine. These sources speak of individual ways to foster patient hope, but to our knowledge, until now, no one has integrated these practices into a clinically useful algorithm. The Guide provides a framework that physicians of diverse specialties can efficiently implement in their patient care. Further studies are needed to assess its effectiveness in clinical practice.

### **References**

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## **Poster 6 - Using Mobile Telemedicine to Enhance Patient Care**

N. Gabbur, B. Goldman

Hofstra Northwell Donald and Barbara Zucker School of Medicine at Hofstra University

### **Objective or purpose of innovation**

Phone Triage is a common method to practice medicine. With the advent of new technology, telemedicine is now possible in real time. It is still phone technology with the addition of video. Video addition adds new dimensions for remote patient care. It allows the viewer to see what was once only able to be described over the phone. Similarly, the act of relaying information is many times dependent on visual cues. Video enhancement to relay patient information to another physician may clue the practitioner to other dimensions in the patient's care. In this educational innovation, video will be used as a modality to relay information to attending physicians off-site. This will be compared to the traditional method of phone triage.

### **Instructional methods and approach**

The Ob/Gyn Service at Hofstra Northwell at North Shore University Hospital and Long Island Jewish Medical Centers is combined the busiest obstetrical service in New York and possibly the Northeast. It is common for residents to rely information to attending physicians regarding patient status during labor. In this innovation, resident physicians will use Video calling features on their phone to connect with attending physicians. The attending and resident physicians will then be surveyed regarding their views on this technology and if seeing the resident present the patient actually enhanced their appreciation and understand of the information being relayed.

### **Educational Outcomes**

The residents and attending physicians will be surveyed regarding: their likeability of this application of this technology; ease of use; assessment if it helped understand a patient's status, and whether they are willing to permanently adopt this for future communication.

### **Strength of Innovation**

The study is ongoing

### **References.**

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## **Poster 7 - A Resident as Teacher program designed by Medical Education Pathway Medical Students: Educating our Educators**

T. Weiss, A. Jonokuchi, J. K. Oh

SUNY Downstate

### **Objective or purpose of innovation**

The ACGME requires that residents "participate in the education of ... students, residents and other health professionals". The ACGME Program Information Form directs programs to detail activities encouraging the acquisition/ refinement of teaching skills. While residency programs meet this requirement, GME leadership supports additional formalized/standardized activities designed to build resident teaching skills. Additionally, some medical students report that they are not receiving appropriate feedback, dedicated teaching, or assessments from residents during clinical rotations. Several MS2-MS4 members of our Medical Educators Pathway (MEP) are collaborating with UGME/GME faculty to create a Resident as Teacher (RaT) curriculum, including innovative modules and sessions designed to develop specific teaching skills applicable to multiple residency programs. We hope to create a student position on the GME Education subcommittee to be filled by the then current project leader.

### **Instructional methods and approach**

A literature search revealed many existing RaT programs. We designed a survey to determine Resident

attitudes toward implementation of a RaT program in four residency programs, and their attitudes/practices concerning feedback, learner assessment, and other teaching skills. Resources utilized include faculty reviewers and a web-based platform.

#### **Educational Outcomes**

We will quantitatively/qualitatively measure residents' confidence in their teaching abilities, satisfaction with education/evaluation by more senior residents, whether they would benefit from a RaT program, and preferences for certain educational methods. Based on collected data, we will develop a skills-based module this January, implement it soon afterward, and perform a follow-up survey measuring impact of the module.

#### **Strength of Innovation**

Unlike many other existing RaT programs, this project will evolve over several years, incorporating innovation and adjustment, and possibly including a resident advisor. It is a unique opportunity to create infrastructure allowing medical students to directly collaborate with GME/UGME faculty in influencing Resident teaching, and thereby their own education. This project will hopefully contribute positively to the learning experiences of medical students and junior residents.

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### **Poster 8 - Towards Standardization of Pulmonary and Critical Care Ultrasound Education**

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#### **Background or theoretic framework and importance to the field**

While such training is required by the Accreditation Council for Graduate Medical Education (ACGME), no standard exists for ultrasound (US) training for Pulmonary and Critical Care Medicine (PCCM) fellowships. We have developed and implemented a comprehensive US training course for first year of PCCM fellowship at Stony Brook University Hospital (SBUH).

Multiple paradigms of US education are proven in the literature. Simulation training and hands-on instruction have been used successfully for US guided procedural training. US image recognition has been taught successfully by didactics. Proctored instruction has been shown effective at teaching image acquisition.

#### **Methods**

Our US course incorporates several of these proven methods, incorporating simulation training, targeted didactics, image portfolio development, deliberate practice and real-time patient scanning.

Materials include a bedside US machine, lectures and our online- accessible US manual. Educational outcomes are US knowledge and hands- on skills, which were measured using pre-course, post-course and 6 month retention exams for US knowledge and skills.

Pre-course, post-course and knowledge and skills data from 14 PCCM fellows over 3 years (2015-2017) was reviewed.

#### **Results**

There was a significant increase in knowledge scores (Wilcoxon Signed Ranks Test,  $Z=-3.30$ ,  $p=0.001$ ) and skill scores (Wilcoxon Signed Ranks Test,  $Z=-2.8$ ,  $p=0.005$ ) immediately post- course. Six- month retention of knowledge ( $N=8$ ) and skills ( $N=4$ ) was noted when post course scores were compared to scores at the 6 month mark (Wilcoxon Signed Ranks Test, Knowledge:  $Z=0$ ,  $p=1.0$ ; Skills:  $Z=-.73$ ,  $p=0.47$ ). Course evaluations were overwhelmingly positive.

#### **Conclusions**

We have developed an US course to meet the growing need for PCCM fellowship programs to have standardized approach and content for ultrasound education. Our methods combine established US education techniques to formulate a novel, comprehensive US training program for PCCM.

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### **Poster 9** - Simulation and Teaching Suicide Prevention in Primary Care Residency Programs: A Scoping Review

T. Delaney, D. Lopez, S. Maruti  
University of Vermont Larner College of Medicine

#### **Background or theoretic framework and importance to the field**

Suicide is a growing problem in the US (1). Many people who go on to die by suicide were not receiving mental health care prior to their death, while a majority were seen in primary care and other medical settings prior to dying (2). National recommendations support the increased role for primary care providers in identifying suicidality and initiating treatment, but many providers feel inadequately prepared to fill this role. Teaching specific suicide prevention competencies, including use of simulated patients, is a promising approach for strengthening the preparation of primary care providers. We used a scoping review approach (3) to identify and characterize the research on teaching suicide prevention to primary care residents, with a particular focus on the use of simulated patient approaches.

#### **Methods**

We conducted key word searches of the MEDLINE, CINAHL and MedEdPortal databases for 1998 through September 2017. Terms included suicide, prevention, education, resident, simulation and standardized as well as variations of each term. Articles were collaboratively scored regarding their relevance in the areas of suicide prevention education, use of simulated patients and teaching in a residency program.

#### **Results**

227 articles were identified. After scoring, 32 of the publications were further reviewed and summarized in an annotated bibliography. The annotated bibliography was examined in order to identify specific areas of strength and weakness in the literature related to the teaching of suicide prevention using simulation in residency programs.

#### **Conclusions**

The literature on how to prepare residents in primary care training programs to work with patients at risk for suicide is lacking. Of the articles most closely related to resident education, fewer than 5 were sufficiently detailed to inform the development of a simulation-based approach to improve the training of primary care residents in crucial areas such as suicide risk assessment and safety planning.

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  3. Peters M et al. Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc*. 2015 Sep; 13(3): 141-6.
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### **Poster 10** - Data Dashboards to the Rescue: Evaluating and Supporting GME Training Programs

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#### **Objective or purpose of innovation**

As part of the Accreditation Council for Graduate Medical Education's (ACGME) Next Accreditation System, (NAS) residency and fellowship training programs are required to complete an annual program evaluation (APE) to assess overall program health. (1) A summary of a program's APE must be submitted to institution's Graduate Medical Education Committee (GMEC) for internal review. In order to more effectively identify underperforming programs, we developed a systematic review process through the construction of two evaluation dashboards (Dashboard A & B).

#### **Instructional methods and approach**

In 2016, we developed a common APE survey form that was completed and submitted to the GMEC by every training program. Domains of program quality that were assessed include: resident/fellow performance; faculty performance, graduate performance and overall program quality. Individual item responses were tagged with a (+) if it was a compliant response or a (-) if it was a non-compliant response. Additionally, results from the annual ACGME resident/fellow survey for each training program were analyzed. Survey items scores that were 0.2 above the national mean were tagged with a (+) and items that were 0.5 below the national mean are tagged with a (-).

#### **Educational Outcomes**

To help facilitate a more efficient GMEC review process, Dashboard A was designed to present a filterable program level breakdown of compliant and non-compliant responses from our APE survey. Dashboard B was designed to present a program level breakdown of high and low performing survey scores from the ACGME resident/fellow survey. By utilizing these dashboards, the GMEC was able to review 74 training programs and quickly identify programs in need of a more intensive review or institutional support.

#### **Strength of Innovation**

Our program dashboards and scoring system can potentially help other institutions enhance their program review process as well as provide a blueprint for leveraging institutional resources to support struggling programs.

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### **Poster 11 - Implementation and Usefulness of the Accreditation Council for Graduate Medical Education Milestones System for Urology Resident Evaluation**

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#### **Background or theoretic framework and importance to the field**

The Accreditation Council for Graduation Medical Education (ACGME) recently introduced the competency-based Milestones system as a means of streamlining resident evaluation. The specific benefits to Program Directors (PDs) and residents, as well as possible barriers to implementation, have yet to be addressed in the urology literature. Our objective is to assess the application and the perception of usefulness of the Milestones system in among PDs in urology.

#### **Methods**

We conducted a 26-question online survey sent to 137 urology residency PDs. The survey addressed: (1) demographic information, (2) logistics and implementation of the faculty Clinical Competency Committee (CCC) meetings, and (3) perceived overall effectiveness and usefulness of the Milestones assessments. All responses were pooled and analyzed anonymously.

#### **Results**

A total of 36 responses were obtained (26% response rate). Respondents represented programs in all

American Urological Association sections. The CCC is chaired by the PD (53%) or another key faculty (28%). In 11/36 programs (31%) training on the Milestones system was not provided; and, only in a minority of programs is training required (11%). Many programs described the Milestones as very or somewhat unhelpful in resident evaluation (42%), and 34% felt the Milestones assessments never or almost never accurately distinguished between residents. Respondents felt higher scores on all domains were completely or somewhat uncorrelated to higher in-service scores (61%) and passing the boards (39%). Overall, most respondents answered neutrally as to whether they felt the Milestones led to better resident formative feedback (36%) or professional development (39%).

### **Conclusions**

The ACGME Milestones system was initiated for uniform competency-based assessment of residents; however, the majority of urology PDs in our cohort did not find the Milestones system helpful or accurate in assessing residents or predicting future successes. Given the Milestones system is new, the usefulness to programs moving forward in resident evaluation is yet to be determined.

### **References**

Please list references below.

N/A

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## **Poster 12 - The Accreditation Council for Graduate Medical Education Milestones System for Resident Evaluation: Our 3-Year Experience with Resident Self-Evaluation**

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### **Background or theoretic framework and importance to the field**

The Accreditation Council for Graduate Medical Education (ACGME) aimed to create a uniform process for resident evaluation by implementing the competency-based Milestones system. Literature regarding the Milestones is limited. We aimed to evaluate our experience using the Milestones system, assessing for discrepancy in resident and CCC evaluations.

### **Methods**

We retrospectively reviewed Milestones self-assessments completed by residents and those completed by the CCC for all residents in a single urology program from 2015 to 2017. Questions not present for all years were excluded, and each question was scored on a 5-level scale. Mean scores were calculated and t-test performed to compare resident and CCC evaluations.

### **Results**

A total of 36 residents (18 junior and 18 senior) and 30 questions were included. Junior residents included post-graduate year (PGY) 2-3, senior residents included PGY 5-6. 15 (42%) of residents were female and 21 (58%) male. Among all residents there was no difference between resident and CCC evaluations (mean score 3.7 +/- 0.7 versus 3.7 +/- 0.8,  $p=0.85$ ). There was a significant difference in scores between junior and senior residents (3.09 versus 4.33,  $p<0.01$  and 3.24 versus 4.25,  $p<0.01$  for CCC and resident evaluations respectively); however, no difference was seen in scores between resident and CCC evaluations for either junior (3.24 versus 3.09,  $p=0.44$ ) or senior residents (4.25 versus 4.33,  $p=0.52$ ). There was again good agreement between resident and CCC evaluations for both female (3.49 versus 3.48,  $p=0.95$ ) and male (3.92 versus 3.88,  $p=0.84$ ) residents.

### **Conclusions**

We observe good concordance between resident and CCC evaluations, among both junior and senior and male and female residents. These findings suggest the Milestones program is a good objective metric of resident performance in urology, although this remains to be validated with more years of experience.

### **References**

N/A

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**Poster 13** - Improving Gastroenterology Trainee Performance in Endoscopic Hemostasis Techniques Using Cadavers

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Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

**Objective or purpose of innovation**

Endoscopic training for gastroenterology trainees has traditionally followed an apprenticeship model. Gastroenterology trainees are required to complete a set number of procedures prior to graduation, including cases necessitating hemostasis. Endoscopic cases involving active bleeding are infrequent and are usually 'higher stakes,' and endoscopic simulators are of limited benefit for these techniques. Trainees have previously expressed a need for enhanced training with hemostasis. We sought to improve trainee endoscopic hemostasis skills in a safe, controlled, realistic environment.

**Instructional methods and approach**

We created an endoscopy training curriculum to enhance trainee skills with various hemostasis techniques by using frozen cadavers. Trainees complete three separate cadaver sessions: 1) Basic endoscopic technique, 2) Endoscopic treatment of ulcers, and 3) Endoscopic treatment of variceal disease. Prior to each three-hour session, fellows are given a twenty-minute didactic. After which, trainees perform the sessions' indicated hemostasis techniques on cadavers with faculty providing, real-time feedback allowing fellows to continually improve technique.

**Educational Outcomes**

Trainees complete a pre- and post-test for each session involving demographics (i.e. EGDs), a Likert scale assessing comfort with endoscopic techniques, and medical knowledge questions regarding the topic of the day. After each session, all trainees saw an increase in comfort with the endoscopic skills being addressed. Prior to the second session, 3 of 4 trainees reported one or fewer experiences with hemostasis techniques, re-demonstrating a need for additional training. All fellows reported complete satisfaction and had improved medical knowledge on post-testing.

**Strength of Innovation**

To our knowledge, this is the first published hemostasis training curriculum involving cadavers. This training environment provides an opportunity for fellows to develop endoscopic hemostasis skills in a safe, controlled, realistic environment with continued, dedicated feedback from faculty. Generalizability is limited by cadaver availability, potentially to solely academic hospitals. While we are seeing improved comfort levels, the next step is to objectively assess trainee improvement using validated endoscopic evaluation tools.

**References**

Harpham-Lockyer L, Laskaratos FM, Berlingieri P, et al. Role of virtual reality simulation in endoscopy training. *World J Gastrointest Endosc* 2015; 7(18):1287-94.

**Poster 14** - Pulling Back the Curtain: Education and Reporting on Diagnostic Errors of Physicians in Internal Medicine Training Programs

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**Background or theoretic framework and importance to the field**

Based on the goals of the National Academy of Medicine (NAM) report "Improving Diagnosis in Health Care", we aimed to assess Internal Medicine residents' and faculty's education and training on diagnostic error.

**Methods**

This is a multicenter, cross-sectional, mixed methods, survey study. Survey content was derived from the NAM's second, fifth, and sixth goals for a total of eight multiple choice questions. From June 2016 to March 2017, surveys were administered anonymously via e-mail or by paper during in-person educational conferences. We targeted residents and faculty in Traditional Internal Medicine, Primary Care Internal Medicine, and Internal Medicine-Pediatrics at nine community and university-based

training programs in Connecticut. Comparison testing across institution, experience, and self-reported gender was performed using Pearson's chi-squared test on STATA© software.

### **Results**

Of 484 physicians (87 attendings, 397 residents) targeted, 266 (70 attendings, 196 residents) responded. 158 (59.3%) surveys were in-person and 196 (73.7%) were from residents. Less trainees than attendings reported that their training program taught residents how to communicate about diagnostic errors (43.5% Yes v. 64.7% Yes,  $p < 0.01$ ). Less trainees than attendings felt comfortable reporting diagnostic errors when they occur (55.4% comfortable v. 69.1% comfortable,  $p = 0.05$ ). Trainees also differed from attendings in whether they felt residents were encouraged to report errors to senior residents (59.4% v. 44.8%;  $p = 0.04$ ), chief residents (20.9% v. 32.9%;  $p = 0.05$ ), attendings (56.1% v. 79.1%;  $p < 0.01$ ), and program directors (9.6% v. 19.4%;  $p = 0.04$ ).

### **Conclusions**

In this multi-center survey study on diagnostic error, we found that residents are not always taught how to report diagnostic errors. When they do report diagnostic errors, they are less likely to feel comfortable and report them to senior supervision (chief residents, attendings, and program directors).

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## **Poster 15 - Narrative perspective and reflective writing: A Longitudinal MS4 Elective in Health Humanities**

A. Fornari

Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

### **Objective or purpose of innovation**

Two significant challenges facing medical education are the decrease in student empathy and increase in burnout over the course of medical school (1). Students need skills to maintain their ability to connect with patients and other health professionals, while also taking care of themselves (3). The Health Humanities address these challenges by focusing on the ways we absorb, interpret, and respond to stories in literature and other forms of art, offering a model focused on physicians' relationships with their patients, colleagues, society, and themselves (2). Our goal is to share the experience of offering a longitudinal elective and offer a model for creating curricular specific to health humanities.

### **Instructional methods and approach**

A longitudinal (July-March) MS4 elective allows protected space and time in the curriculum for students to explore health humanities and connect their professional experiences with patients and health professionals using narrative writing and reflective practice. This elective was placed in MS4 year to align with other required rotations and interviews for residency. Faculty who were part of a CoP focused on health humanities and narrative writing teach in the elective. Logistics for optimum design and implementation will be described. Assessment included students and faculty data.

### **Educational Outcomes**

As the elective is in progress, all data will be collated/analyzed to report.

1. Pre/post student data aggregated: Maslach Burnout Inventory scores and the Connor Davidson Resilience Scale.
2. Student feedback
3. Faculty feedback

### **Strength of Innovation**

The purpose of this elective is to develop students' capacities for continuous reflection and self-regulation through the lens of health humanities. Medical students who self-select to participate in a

elective benefit from the content presented and the small group experience with peers and faculty. We anticipate students will continue to pursue this type of learning in their future and seek guidance to integrate Health Humanities into future learning environments they engage in as physicians.

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1. Dyrbye L, Thomas M, Huntington J, Lawson K, Novotny P, Sloan J, Shanafelt T. Personal life events and medical student burnout: a multicenter study. *Acad Med.* 2006 Apr 1;81(4):374-84.
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#### **Poster 16 -** Development of a Novel Medical Education Elective for 4th Year Medical Students

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#### **Objective or purpose of innovation**

Physicians frequently find themselves in the role of teacher (1). Historically, undergraduate medical education (UME) and graduate medical education programs have done little in educating students and trainees in adult learning theory, educational pedagogy and teaching skills (1,2). At Cooper Medical School of Rowan University, there are currently no courses in the undergraduate curriculum specific to medical education or pedagogy that help prepare our students for their teaching role during residency. Our students are exposed to a modified form of PBL, known as active learning groups (ALG), which is an integral part of the pre-clinical curriculum. Students have an understanding of the role of the learner in ALG but not what is involved in case construction. In a novel attempt to help prepare our students for teaching during residency training and develop their knowledge in educational pedagogy, we created a UME 4th year elective designed to teach students how to construct PBL cases and accompanying facilitator's guide.

#### **Instructional methods and approach**

The PBL case writing elective is 4 weeks in length and introduces 4th year medical students to the primary literature related to PBL case construction. Students are expected to author a PBL case which includes a case stem, releases, and a facilitator's guide. Students reflect weekly on their educational experience through written reflections. They receive feedback regarding the first draft of their cases/guides from the course directors and are expected to submit a complete PBL case, including a case stem, releases, and facilitator's guide, at the end of the elective. Students are graded on their weekly reflections and their final case.

#### **Educational Outcomes**

In this work in progress, we will report on student performance/satisfaction in the elective. We expect that electives similar to this one could be used at other medical schools as a way of introducing students to this educational pedagogy.

#### **Strength of Innovation**

To be reported.

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#### **Poster 17 -** Evaluating the Impact of a Law and Medicine Course Using Concept Maps

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Stony Brook University School of Medicine



### **Objective or purpose of innovation**

For decades educators have emphasized the importance of teaching medical jurisprudence in medical school. Specifically, medical students must be made aware of the potential legal issues they may face as future practitioners, develop the ability to use legal resources, and most importantly enhance their ability to make clinical decisions where law and medicine intersect.<sup>1</sup>

### **Instructional methods and approach**

A 4-week selective course, "Law and Medicine: New York Jurisprudence and Medical Students", was created and offered during the year four medical school curriculum. Topics covered in this course include medical malpractice, mental hygiene law, statutes of limitations and the doctor/patient relationship. To demonstrate the effectiveness of the course, students were asked at the beginning and at end of the course to create a concept map by drawing relationships among concepts related to the patient, doctor, legal system, and healthcare delivery system. The maps were analyzed based on how they were organized (hierarchical or integrated) and how many concepts were in each map from before and after taking the course. Integrated concepts maps demonstrate a deeper level of understanding than concepts maps with hierarchical organization.<sup>2</sup>

### **Educational Outcomes**

Sixteen concept map sets (pre/post) were created by 54 medical students in groups of 3-4. Analysis of the maps revealed a majority of the groups increased the number of concepts by the end of the course. The post-course maps demonstrated a deeper understanding of what goes into the doctor-patient relationship, medical malpractice lawsuits and ways to prevent them. Several groups drew the concept of the "patient" in the center of the map or "the legal system" at the top depicting their understanding of how law will affect their practice. Most groups already created an integrated map at the beginning of the course.

### **Strength of Innovation**

Concept maps promote critical thinking and can be used to demonstrate the evolution of student thinking over time.<sup>3</sup>

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## **Poster 18 - A Novel Transitions of Care and Discharge Planning Workshop for Senior Medical Students**

A. Grajny, J. Lee  
Albany Medical College

### **Objective or purpose of innovation**

Transitions of care, as patients are discharged from the inpatient to outpatient setting, are becoming more frequent in our medical system (1). This transitional period is a common time for medical errors, many of which may be prevented with improved discharge practices and communication (2). Therefore, the need to teach medical students best practices in transitions of care is paramount to ensure patient safety through the discharge process.

Unfortunately, this educational need is not being met at most medical schools. From our literature review, few medical schools have published results of formal transitions of care curriculums (3). More often, students learn transitional care skills from observation of residents, which lacks standardization.

Instructional methods and approach

### **Educational Outcomes**

To address this curricular need at our institution, we are piloting a Transitions of Care Workshop in the fourth year capstone rotation, which aims to prepare students for internship. In this workshop, we review

the topic of medical errors at time of hospital discharge as well as ask students to practice writing a discharge summary. With this curriculum, we aim both to standardize education regarding discharge planning, and enhance the student's understanding of systems based learning, team work, and communication skills.

### **Strength of Innovation**

This novel curricular design is unique to the capstone experience, and is the only opportunity for senior medical students to learn valuable discharge planning skills. Students will practice peer-assessment after content delivery, and then have a chance to evaluate the session. As this is a pilot, we are looking to strengthen our assessment of skills obtained going forward.

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  3. McBryde, M. et. al. Transitions of Care in Medical Education: A Compilation of Effective Teaching Methods. *Family Medicine.* 2016. 48 (4): 265-272.
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### **Poster 19 - Implementing a Longitudinal Physician Leadership Program through Partnership with a Health System**

T. Jordan, J. Brenner, S. Abrahams, B. Ingram, A. Liu  
Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

### **Objective or purpose of innovation**

As healthcare becomes increasingly complex with a larger emphasis on patient-centered care, physicians are looked upon to assume leadership positions. 1, 2 Changing payment and delivery models, as well as a need to form and cultivate interprofessional working relationships also require that future physicians possess leadership and business training in order to succeed in this environment. 3 To respond to these needs, the Zucker School of Medicine in collaboration with leadership of Northwell Health, developed the Klar Leadership Development and Innovation Management (LDIM) Program. This longitudinal program, piloted in summer 2017, offers students ongoing, hands-on leadership training throughout their undergraduate medical education.

### **Instructional methods and approach**

Klar scholars begin their training with a summer immersion program, the core of which is a mentorship pairing with a Northwell physician-leader. The immersion also includes: ownership of a project within the health system, active observation of leaders in a variety of disciplines, completion of self assessment inventories, and participation in workshops, lectures, and skill-based sessions.

### **Educational Outcomes**

Following the summer intensive, Klar Scholars are expected to use their developing leadership skills to achieve the following outcomes, all of which will determine the impact of the initiative.

1. Project presentation at SOM Scholarship Day
2. Initiation of curricular change by Klar Scholars
3. Partnering with SOM Healthcare Leadership club to plan extra-curricular activities
4. Cultivate relationships within Hofstra University outside of the SOM and Northwell Health

### **Strength of Innovation**

While many leadership programs within undergraduate medical education stem from the medical school, the Klar LDIM program is unique in that Northwell Health leaders helped to shape the curriculum and offer hands-on opportunities within healthcare leadership. Furthermore, students use their acquired skills in real time to enact change in their own curriculum and forge partnerships with the university and health system community.

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**Poster 20** - Educating Medical Students to Become Great Teachers: A Longitudinal MS4 Medical Student as Teacher Elective (MST)

E. Schlegel, A. Fornari, M. Cassara  
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

**Objective or purpose of innovation**

Medical education bodies worldwide consider teaching a physician core skill [1,2]. Grounded in the principles of workplace learning, we introduce a longitudinal medical student as teacher (MST) elective combining didactic foundations of educational theories, strategies, and curriculum design with expectations to teach within different courses of the medical school curriculum during the 4th undergraduate year. The purpose of this innovative MST elective is offering a comprehensive program reinforced with practical teaching experience with the intent to provide opportunities to prepare for teaching excellence to students interested in medical education during residency.

**Instructional methods and approach**

Interactive didactic educational boot camps, experiential learning as participating educators, flexible independent study, and a capstone project prepare MS4 students to accomplish different pedagogies across a variety of instructional settings. Tools such as a visual timeline, reflective online teaching logs, debriefings and mentoring from the program faculty, and an educational project enable students to successfully complete the elective.

**Educational Outcomes**

Semi-structured exit interviews will evaluate if curriculum and tools accomplish learning objectives and meet the needs of the MS4 students. Learning will be assessed from reflective teaching logs, face to face debriefings on teaching experiences, journal club presentation and completion of their final capstone project including a presentation.

**Strength of Innovation**

Residents and students accomplish a large portion of medical student education, and in 2008, student as teacher programs existed for 43 out of 99 U.S. medical schools [3]. The generalizable program provides tools for teaching, reflection, and diverse teaching opportunities accommodating an individual pace. The self-directed learning approach compatible with responsibilities, such as acting internships and residency interviews, allows sufficient time to acquire teaching skills in the basic and clinical sciences. This longitudinal model can easily be adopted by schools with elective time and faculty resources to support the students' learning in the MS4 year. Improvements will be reported based on student feedback.

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## **Poster 21** - Roadmap to Success: Conceptualizing Faculty Development for Basic Science Faculty

E. Schlegel, L. Ma

Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

### **Objective or purpose of innovation**

Expert science teaching, learning facilitation and innovative curriculum planning are core responsibilities of new basic science faculty joining medical schools [1]. However, faculty development programs are oftentimes not coordinated with these new responsibilities. Grounded in the principles of workplace learning, providing comprehensive guidance in the academic environment is key to professional success [2]. The purpose of this innovation is to illustrate how navigation and exposure to curricular landscape and pedagogic methods, combined with acquiring new educational skills, can be accomplished in a step-by-step fashion.

### **Instructional methods and approach**

The roadmap to support faculty in their new roles includes seven steps, (1) Exploration of curriculum, (2) Review of pedagogies, (3) Locating curricular content, (4) Adjustment of content, (5) Developing sessions, (6) Active Instruction, and (7) Reflection, feedback and advancement. These steps of the faculty development roadmap function as individual developmental milestones for new faculty to visualize their faculty roles within the culture in their school of medicine.

### **Educational Outcomes**

The targeted outcome of this intervention was reduced transition time for new faculty. The impact of this program is evident in new faculty who embark on their responsibilities with confidence and a greater understanding of their expectations. Faculty were able to identify multiple responsibilities and challenging demands originating from different institutional levels. This assured a streamlined individualized faculty development process in an organized fashion for the benefit of faculty and institution.

### **Strength of Innovation**

Traditional faculty development is a collection of educational interventions and oftentimes not synchronized with institutional needs. A step-by-step process can align educational methods with curricular threads. This generalizable, comprehensive faculty development roadmap provides an individualized approach using multiple stakeholders supporting a systematized transition into a new role. Expanding the roadmap to clinical teaching faculty will allow additional generalization. Improvements will be reported based on faculty feedback.

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## **Poster 22** - Profile of Today's Dual-Degree Physicians: Influencing Factors and Attitudes

J. Cury, D. Cannone, M. Svrakic

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### **Background or theoretic framework and importance to the field**

The quantity and variety of dual-degree opportunities for today's physicians continues to rise. We are investigating what personal and professional motivating factors, attitudes, and beliefs are driving the demand for physicians pursuing professional secondary degree programs.

### **Methods**

120 anonymous surveys were sent out to physicians and physicians-in-training. Outcome measures were differences between the groups in age, generation, gender, family status, level of training, academic

status, academic promotion potential, type of degree, and time in career degree was obtained. Differences in beliefs about the current attributes of the medical profession, perceived advantages of and barriers to secondary professional degrees, as well as professional and personal motivating factors for pursuing secondary degrees were also recorded.

### **Results**

There was a 49% survey response rate. Out of the respondents, 34 physicians either currently enrolled in or interested in secondary professional degrees (MPH, MBA, PhD, JD, MA/MS) or who have matriculated from dual degree programs were surveyed and compared to a control of 42 single degree physicians (MD/DO degree only). The most common motivation to obtaining a secondary degree was career advancement. Physicians with higher growth potential were 4.5 times more likely to be interested in or enrolled in a secondary degree. Lower ranked academic physicians were more likely to believe that career advancement is competitive. Dual degree physicians were more excited regarding the variety of nonmedical opportunities for healthcare professionals than single degree physicians. Younger generations and men believed that dual degree physicians enjoy further career advancement opportunities, while women were more likely to believe career advancement depended on external factors, such as degree or institution.

### **Conclusions**

Motivating factors for obtaining a secondary professional degree differ across gender, age and academic ranking. Our study begins to elucidate the changes that have contributed to the increase in physicians who obtain secondary professional degrees.

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**Poster 23** - A qualitative study on how academic faculty learn to be teachers and barriers to teaching trainees

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Yale School of Medicine

**Background or theoretic framework and importance to the field**

Most physicians find themselves in the role of teaching trainees but have limited formal instruction on how to teach. We sought to better understand how faculty learned to be effective instructors, what skills they perceive to be important, what barriers exist, and settings in which they teach.

**Methods**

As little research has been done in this area, we used exploratory qualitative research methods. Eleven junior faculty in the Department of Pediatrics at the Yale University School of Medicine participated in one of two focus groups. Participants were selected because of their relatively new roles as teachers. The focus groups were audiotaped and transcribed. The authors reviewed the transcripts line-by-line independently, and then together to identify key themes.

**Results**

Four major themes emerged: (1) Methods by which participants learned to teach included role modeling, trial and error, and feedback; there was only a limited amount of formal instruction. (2) Teaching settings included lectures, on the wards, in clinics, and to peers and patients. (3) Important skills for becoming an effective teacher were assessing the learners' baseline knowledge, setting expectations, adapting through self-reflection, feedback, and creating a learning environment. (4) Barriers to effective teaching included clinical volume, time constraints, discordant learners' baseline knowledge and learning styles, and the lack of feedback on their teaching skills.

**Conclusions**

Despite the fact most academic pediatric faculty are expected to teach trainees effectively, they face many barriers including inadequate formal instruction and understanding of the principles of teaching and systems issues that constrain time. Focused training and institutional support that incorporates these needs is important to develop future clinician educators.

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**Poster 24** - Developing a mentoring model that aligns clinical departments with a School of Medicine Faculty Council and Office of Faculty Affairs

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Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

**Objective or purpose of innovation**

A School of Medicine (SOM) and a partnering large health system, which includes 23 clinical departments (CDs) and over 2700 faculty collaborated with the SOM Faculty Council (FC) to confirm an identified gap in consistency of mentorship across the CDs, which can have a negative impact on faculty contentment and, consequently, quality of education for all learners. The FC decided to investigate the status of mentoring in the CDs, as a baseline needs assessment. The goal was to understand which departmental strategies worked well and to consider cross-fertilization of positive strategies to support a centralized approach to mentoring in CDs.

**Instructional methods and approach**

FC members were charged to work with their departmental chairs to complete the survey modified from "A Checklist for the Development of Faculty Mentorship Programs." Data was collated by the FC administrator.

**Educational Outcomes**

The survey was completed by 21/23 CDs. 19% reported a formal mentorship program, 57% with an informal program, 19% stated it varies by division, and 5% do not have mentorship. Data was generated about current mentorship programs and how departments would design their ideal programs in these categories: program structure, goals, resources, evaluation and assessment, and rewards for mentors.

**Strength of Innovation**

Mentoring is not consistent across departments and there is a need for structure, metrics and resources that are customizable and shared among CDs. We intend to develop a toolkit of resources CDs can use, with the goal for resources to improve current programs or develop programs. We need to assess if strong mentoring programs in CDs improve retention, build resilience and impact burnout. We plan to send a survey one year post toolkit distribution to evaluate impact on CDs mentoring programs and assess if these efforts impact faculty resilience with their career. We are planning small group town hall meetings focusing on mentoring needs within selected core clinical disciplines.

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**Poster 25** - The Formation of a New Academy of Medical Educators at a New Medical School

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**Objective or purpose of innovation**

The formation of an Academy of Medical Educators (AME) at schools of medicine is a relatively new practice, with the first developed only 17 years ago. An Academy is a local opportunity for outstanding educators to be recognized and to be part of a community of practice that promotes interprofessional faculty development. This poster will describe the steps to create a new AME and early successes.

**Instructional methods and approach**

Collaboration of the Dean and a senior faculty member enabled the formation of a new AME. The goal

was to recognize outstanding faculty who embrace the guiding principles of the school. The AME began with the formation of an interprofessional Steering Committee (N=10) that was charged with developing membership criteria and writing the mission statement. Five areas of competency were identified: Direct Teaching, Curriculum Development, Educational Leadership, Mentoring & Advising, and Educational Scholarship. The inaugural class of 19 members was selected by the Dean to complete a reflective application process supporting the competency they chose to apply under. This group of faculty have met monthly to define the AME identity and inaugural activities.

### **Educational Outcomes**

The AME completed the following tasks: a medical education grant program, an application review process, and plans for an inaugural medical education day. An education focused consultation program is being considered.

### **Strength of Innovation**

The AME will continue to recognize excellence and reward applicants that embrace our guiding principles. Admission into the AME is not simply a reward; members are expected to actively participate in a service component to medical education. The logistical steps taken to form the AME can be useful to other institutions. Existing literature addresses the strengths of established AME, but not steps needed to form a new Academy. A future focus is for the AME to define how it will measure success.

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## **Poster 26 - A Simulation-Based Curriculum for the Continuous Professional Development of Emergency Medicine Physicians**

T. Palmieri, P. Nemes, M. Cassara  
Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

### **Background or theoretic framework and importance to the field**

Finding ways to provide continuous professional development for experienced attending Emergency Medicine Physicians (EMPs) has proven to be challenging. This is especially true for maintaining competency in high risk, infrequently performed procedures, along with providing care to critically ill, infrequently seen patients (e.g. the sick neonate). While hands-on workshops do exist, they often focus on one specific skillset (e.g. ultrasound, airway management), and are found at infrequently held large national conferences. We sought to develop an evidence-based curriculum utilizing simulation and cadaveric models, along with asynchronous learning online modules, to target the needs of our EMPs in a large health system.

### **Methods**

Content selected for the program includes principles and concepts of critical care resuscitation (adult and pediatric), trauma, sepsis, and advanced technical skills. Instructional materials were developed by internal subspecialty experts using evidence-based guidelines. In addition to web-based modules, a monthly, day-long simulation workshop is held for the EMPs. This includes three high technology mannequin simulations, along with a cadaveric technical skills laboratory focused on low frequency, high-consequence procedures. Formative assessment is provided to EMPs during debriefing sessions following the mannequin-based simulations. Additionally, hands-on, direct feedback is provided to EMPs during the technical skills laboratory.

### **Results**

Knowledge retention after the web-based modules was assessed with a post-course multiple-choice question test. Additionally, in a three month self-reported outcome survey, participants reported improved comfort with procedures and critically ill patients, along with better adherence to evidence-based guidelines.



## Conclusions

Our model provides a framework for other health systems to develop a curriculum for continuous professional development of emergency medicine practitioners. Furthermore it has been found to be an engaging, well-received method of providing continuous education to experienced practitioners. However, It may be challenging for smaller healthcare systems with more limited resources to provide the components of this curriculum.

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## **Poster 27** - Development and Implementation of a Novel Quality Improvement Tool for Problem-Based Learning Case Review

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Cooper Medical School of Rowan University

### **Objective or purpose of innovation**

Problem-based learning (PBL) is an active learning strategy that is commonly used in medical education to develop and improve critical reasoning and life long learning skills. PBL is the cornerstone of the pre-clinical curriculum at Cooper Medical School of Rowan University (CMSRU), where a modified PBL format, active learning groups (ALG), is used. The success of ALG is dependent on the quality of cases and background material provided to faculty facilitators. Currently, a faculty committee reviews ALG cases for appropriateness of content and scope, however, essential elements for ideal case construction have not been formally addressed.

### **Instructional methods and approach**

A literature review revealed five main themes important to case development: Relevant, Realistic, Instructional, Challenging, and Engaging (1.2). These themes were used to construct a novel tool, the R2ICE form, composed of 12 statements describing ideal ALG case construction, which ALG case review committee members can rate using a 5-point Likert scale. This tool also allows for comments to clarify provided ratings.

### **Educational Outcomes**

The R2ICE form was implemented at the start of the most recent case review cycle at CMSRU. Since implementation, committee members have individually completed the R2ICE form for each case reviewed, and responses have been collated. These collated responses are attached at the beginning of a document returned to case authors. Case authors were informed that the R2ICE form was intended to provide them with a context for the committee's comments and edits regarding ALG cases and accompanying facilitator's guides. Anonymous surveys will be distributed to case authors and case review committee members to evaluate the success of this pilot program, and necessary adjustments will be made to the R2ICE form.

### **Strength of Innovation**

We predict that use of the R2ICE form will educate both case authors and review committee members on the best practices for evidence-based PBL case construction, resulting in improved ALG cases.

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**Poster 28 - Making Lemonade Out of Lemons: Optimizing Success in the Setting of Imposter Phenomenon in Academic Medicine**

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**Objective or purpose of innovation**

Imposter Phenomenon (IP) has been found to have a negative impact on career satisfaction and career striving and to function as an inner barrier to pursuing leadership opportunities. IP describes a psychological construct which occurs in high achieving individuals who believe they are less gifted and less capable than others perceive them to be. Women and minorities are more likely to suffer from IP. Further understanding of its origins, its effects and potential benefits will improve self-awareness, and has the potential to optimize leadership skills. The purpose of this review is to examine the current literature and develop an evidence based approach to address IP in academic medicine.

**Instructional methods and approach**

Scanning literature search of imposter syndrome and imposter phenomenon in a variety of databases. Pulling from business, education, medicine and psychological literature, articles were selected that were pertinent to IP in academic medicine, career development and interventions. Four books were also reviewed.

**Educational Outcomes**

The origins of IP are diverse, including demographic, familial, and environmental factors. However, with improved self-awareness and proactive strategies to combat IP, there is significant potential to thrive in an academic medical setting. In fact, the presence of IP may be useful in optimizing authentic leadership qualities. Academic institutions have the opportunity to address this common phenomenon in their trainees and faculty through education, culture change, and targeted interventions to support growth and success.

**Strength of Innovation**

IP is a common phenomenon in academic medicine that has the potential to cause significant stress and negatively impact careers, especially among women and underrepresented minorities. However, there are several strategies that can be used to address IP, ultimately leading to improved career health. Individual coping strategies and both informal and formal institutional support are recommended as helpful approaches. In addition, the presence of IP has the potential to generate more authentic leadership.

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**Poster 29 - Building a MedEd Community of Practice: Moving from an Active Learning Workshop to an Active Learning Culture**

S.J. Goel, Y.-J. Lee  
Howard University College of Medicine

**Objective or purpose of innovation**

The Office of Faculty Development developed a year-long program on active learning utilizing various formats ranging from individual mentoring, group discussion to symposium. The purpose of this longitudinal program was to build a MedEd Community of Practice (CoP).

**Instructional methods and approach**

Active learning strategies such as “flipping the classroom” are accepted as better pedagogical approaches in medical education, particularly ones that are more suited to millennials. Studies show that, the application of this pedagogy is still a challenge to most faculty trying to change their teaching practice. The traditional faculty development model of offering a “one and done workshop that fits all” strategy does not meet the scope of institutional change needed for this new educational paradigm.

### **Educational Outcomes**

Programming was offered for over one year. We started with 1) a one day of symposium on active learning with the goal of raising awareness in new pedagogy and recruiting motivated faculty, followed by 2) mentoring sessions, 3) a session for continued brainstorming and collaboration, 4) a mini retreat to cycle participants rapidly through the planning and pedagogy stages through to content development and production and 4) ongoing workshops to target individual content areas. The Office invited outside speakers/instructors but the major facilitators/mentors were internal faculty/staff.

### **Strength of Innovation**

Based on the high attendance (30-130) and post workshop surveys, the response has been overwhelmingly favorable with faculty self-reporting likelihood of using active learning strategies in their teaching. More importantly, the same faculty attended multiple sessions, indicating that the CoP model was successful. The programs became collaborative spaces that allowed members to regularly meet, reflect, and evolve. The program is labor-intensive but once the cohort is established, the Office played a smaller role in maintaining it, thus it is a sustainable model. Future directions include motivating less engaged faculty and assessing the impact that the CoP has on learner outcomes.

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## **Poster 30 - Impact of Teaching in a Communication Curriculum on Clinician Burnout**

G. Goldberg, A. Fornari, J. Weiner

Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

### **Background or theoretic framework and importance to the field**

There is a growing medical literature on prevention of, and interventions to reduce burnout. Interventions focused on strategies for individuals and for organizations have been effective at reducing emotional exhaustion and depersonalization with smaller effects on overall burnout. The ability for academic faculty to participate in work they find meaningful has been shown to have an inverse relationship to burnout.

There is little medical literature on the impact on faculty burnout of teaching medical students. We hypothesize that teaching in a curriculum focused on empathy skills and self-reflection has the potential to reinvigorate faculty in the practice of medicine and consequently decrease burnout.

### **Methods**

This study is an initial exploration of the impact of teaching in a 7-week communication course on clinician burnout. Faculty completed a survey before and after teaching in the communication course, and again 6-months post-course. The survey assesses burnout and resilience using well-known instruments, and includes open-ended questions to provide qualitative data to guide additional research.

### **Results**

As the study is in progress, all data will be collated/analyzed to report.

1. Pre/post faculty data: scores on Maslach Burnout Inventory and Brief Resilience Scale.
2. Qualitative themes in faculty responses

### **Conclusions**

Demonstration of a positive impact of teaching communication on clinician burnout has the potential to incentivize more faculty to commit to teaching opportunities. Institutions interested in promoting wellness might also consider adding teaching incentives to encourage faculty participation.

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#### **Poster 31 - Teaching Medical Students to Think and Speak Like Doctors: Integration of Communication Skills and Clinical Reasoning into a Case/Problem-based Medical School Curriculum**

G. Goldberg, S. Ginzburg

Donald and Barbara Zucker School of Medicine At Hofstra/Northwell

#### **Objective or purpose of innovation**

Clinical reasoning is an essential skill utilized by physicians. Traditional medical school programs defer development of clinical reasoning skills to the latter half of training. The ability to generate a broad differential diagnosis depends upon use of highly developed communication skills to elicit historical information to support or refute clinical suspicions in real time, however clinical reasoning curricula typically do not include an emphasis on physician-patient communication skills.

#### **Instructional methods and approach**

Our program has a unique opportunity to launch an innovative curriculum integrating communication skills and clinical reasoning. Our fully integrated curriculum begins with an 8-week course inclusive of intensive training in communication and physical diagnosis. Through these early training experiences, students develop a solid foundation of clinical skills.

We developed Clinical Learning Sessions (CLS) during the first two years of medical school that requires students to utilize communication and physical diagnosis skills to successfully reason through cases. Three, 2-hour CLS small group sessions complement our Problem Based Learning Curriculum by focusing on deliberate use of communication skills to establish rapport, elicit patients' histories and apply clinical reasoning skills.

#### **Educational Outcomes**

First and second year students evaluated CLS sessions in three courses during our pilot year. Students rated the sessions highly in terms of finding them useful for developing communication and clinical reasoning skills.

#### **Strength of Innovation**

Our CLS pilot provided proof of concept that integration of development of advanced communications and clinical reasoning skills is feasible. In the future, we look forward to assessing students' abilities to demonstrate advanced communication skills and real-time clinical reasoning in our clinical skills lab as well as their performance in the clinical years compared with historical controls to assess the long-term impact and efficacy of this curriculum.

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#### **Poster 32 - Evaluating the Effectiveness of a Novel, Trauma-Informed Physical Exam Curriculum for First-Year Medical Students**

S. Elisseou, S. Puranam, M. Nandi

The Warren Alpert Medical School of Brown University

**Objective or purpose of innovation**

Trauma is a significant public health concern, associated with mental and physical illnesses such as PTSD, substance use disorder, cardiovascular disease, and obesity. Examples of trauma include adverse childhood experiences, intimate partner violence, sexual assault, racism, community violence, medical trauma, and natural disasters. It is estimated that 89% of people living in the U.S. will experience at least one traumatic event in their lifetime<sup>1</sup>. Despite its prevalence, most physicians lack training on trauma-informed care, a well-established framework for providing quality care to trauma survivors. To address this gap, we created a first of its kind trauma-informed physical exam curriculum for first-year medical students. We focus on the physical exam given its potential to expose patients to shame, vulnerability, and/or triggers of prior trauma. The goal of this skill set is to enhance patients' sense of safety, control, and trust during the physical exam.

**Instructional methods and approach**

We led a two-hour workshop to teach students a complete framework for a trauma-informed physical exam. Using a standardized patient for demonstration, students learned specific language and behaviors to employ before, during, and after the exam to create a trauma-informed environment. This curriculum was piloted with 35 first-year medical students and included time to practice the HEENT, neck, and upper extremity exams using a trauma-informed approach.

**Educational Outcomes**

Students were surveyed about their knowledge and perceptions of trauma-informed care immediately before and three months after the workshop. Overall satisfaction was rated 4.69/5. Students' familiarity, confidence, and frequency using trauma-informed principles rose at three months by 85%, 62%, and 61%, respectively. Students' ability to identify actions non-adherent to trauma-informed principles rose by 49%.

**Strength of Innovation**

Our results suggest that teaching trauma-informed skills in a mixed, didactic-interactive model can have a long-acting effect. Given the workshop's promising results, the trauma-informed physical exam curriculum has subsequently been integrated into the standard clinical skills curriculum.

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**Poster 33 - It Takes a Village: A Multidisciplinary Trauma-Informed Care Curriculum for Medical Students**

M. Shankar, L. Cardella  
University of Rochester School of Medicine and Dentistry

**Objective or purpose of innovation**

It is well understood that trauma has short- and long-term implications for an individual's health and life outcomes. While trauma and trauma-informed care are widely discussed in other disciplines, there is very limited literature regarding this topic in undergraduate Medical Student education. Currently, there is no formal curriculum at our institution regarding trauma-informed care. The purpose of our innovation is to evaluate the feasibility of a trauma-informed curriculum in small group seminar format and to improve medical student knowledge and attitudes regarding trauma and trauma-informed care.

**Instructional methods and approach**

We developed an 8-session elective seminar for a group of 8-12 first-year medical students. Students will explore topics in trauma-informed care through readings, discussions, and experiential learning facilitated by local experts in social work, education, juvenile justice, psychology, psychiatry, and pediatrics. Pre- and post-program evaluations will be administered on the first and last day of the seminar to gather both quantitative and qualitative data in regards to knowledge and attitudes of childhood trauma and trauma-informed care.

**Educational Outcomes**

We plan to conduct the seminar from 1/9/2018 to 2/27/2018. We hypothesize that students will

demonstrate increased:

1. Ability to understand and recognize the physiological, social and legal impact of childhood trauma.
2. Ability to describe the role of trauma-informed care in public schools, the legal system, in clinical settings.
3. Confidence when approaching patients with a history of trauma.

### **Strength of Innovation**

We will evaluate the feasibility of reproducing this curriculum as a small-group seminar format, and we plan to incorporate meaningful elements of the seminar into the mainstream primary care curriculum for all medical students at our institution. If successful, the format and content of this seminar may be helpful to other medical educators when approaching trauma-informed care education. We hope to publish our findings, as this will be a novel contribution to existing literature.

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### **Poster 34 - Trauma Informed Care in Early Medical Education**

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### **Objective or purpose of innovation**

Traumatic experiences such as physical injury, emotional abuse, sexual assault, intimate partner violence, and child abuse are epidemic in the US and the world. While behavioral health training programs require robust training in trauma informed care (TIC), there is no such requirement in medical schools. Since trauma impacts short and long-term health outcomes we aim to introduce TIC early in medical education. We use a skill-based session focused on approaching victims of physical, emotional, or sexual trauma through the use of empathy, empowerment of the patient, and prevention of re-traumatization.

### **Instructional methods and approach**

Twenty-two medical students participated in a two-hour pilot program that consisted of an introduction to the Adverse Childhood Events Study followed by a small group workshop in which students practiced grounding and communication techniques applied to scenarios involving trauma. Pre and post-event questionnaires assessed student TIC training and confidence in caring for a patient who had experienced trauma. A paired t-test was used to compare pre and post-session confidence.

### **Educational Outcomes**

Pre-session survey data revealed on average students rated their preparation for responding to a person who had recently experienced trauma as 2.2 (Likert scale 1-5, 1 not prepared and 5 completely prepared). Post-session survey data revealed students rated their pre-training confidence in responding to a patient who had experienced emotional or sexual trauma at 1.8 out of 5 (5 very confident) and student-reported confidence responding to victims of trauma doubled following participation in the session ( $p < 0.0001$ ).

### **Strength of Innovation**

There is limited literature for TIC in medical education. Since emotional, physical, and sexual trauma are so common and devastating, training students to respond appropriately and effectively is key to quality care. We developed, implemented, and evaluated a skill-based session employing realistic scenarios to encourage skill development by medical students.

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**Poster 35** - Implementing Electronic Medical Record Education into a Preclinical Medical School Curriculum

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**Objective or purpose of innovation**

While education in how to utilize an EMR is acknowledged to be critical for today's medical students, there is little published information on how to best accomplish this. This study compared two methods of EMR training in consecutive medical school classes.

**Instructional methods and approach**

The class of 2018 received two hours of EMR training from the Information Technology department before clerkships. The class of 2019 received this training, but were also given access to a virtual EMR domain to practice entering and extracting information from the record of a mock patient with cystic fibrosis. After, students had an interactive lecture about proper and improper usage of EMR. To assess level of understanding about EMR, students took a ten-question quiz (five questions about what an EMR can do and five questions about what it cannot do). They also completed a Likert survey assessing satisfaction with the EMR teaching method, confidence level in understanding how an EMR works, and comfort entering EMR notes and orders.

**Educational Outcomes**

Forty-four of 128 students (34%) in the class of 2018 and fifty of 132 students (38%) in the class of 2019 participated in the study. Mean quiz scores were compared between classes using regression analysis to adjust for prior EMR experience. Likert responses from the survey were analyzed via T-test. Quiz scores were significantly higher in the class of 2019 ( $p < 0.05$ ); prior EMR experience did not significantly affect quiz scores ( $p = 0.5$ ). Mean Likert scale survey responses showed that the class of 2019 students perceived a significantly higher degree of preparedness and ability to interact with an EMR compared to the class of 2018 ( $p < 0.05$ ).

**Strength of Innovation**

Our data suggest that a virtual EMR is a useful tool for preparing medical students to utilize EMR before beginning clerkships. Limitations included small sample size and inability to enforce utilization of the EMR domain.

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**Poster 36** - Flipping the script: video recorded oral presentations and peer to peer feedback to learn a critical clinical skill

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**Background or theoretic framework and importance to the field**

Delivering an oral presentation of a patient case is a complex skill that all medical students must develop.

Existing curricula have required significant personnel resources to teach, observe and provide feedback on student oral presentations (1,2). One example of the use of e-learning to facilitate student oral presentation skills exists, but is personnel resource intensive (3). We set out to design a curriculum using an online module and peer feedback to improve student oral presentations without faculty supervision.

### **Methods**

90 Y1 medical students in week 10 of training participated in a formative-OSCE and subsequently video-recorded themselves doing an oral presentation on the same patient. Later, students participated in an online learning activity on oral presentations that enabled them to evaluate example presentations and complete interactive questions. Following this, small groups of students watched each other's oral presentations and provided feedback to each other using a faculty created rubric. Subsequently, the students were surveyed on their experience.

### **Results**

The response rate was 60%. 51% agreed or strongly agreed that they felt more comfortable delivering oral presentations after the session. 58% agreed or strongly agreed that the format involving peers only, without faculty members present, was an effective way to conduct the session. Review of student narratives indicated that students learned the importance of an appropriate structure to the oral presentation and key presentation skills such as eye contact, appearance, voice modulation and over-reliance on notes.

### **Conclusions**

While this educational intervention was viewed skeptically by students completing the survey, narrative comments indicated that most learners achieved the learning objectives for the session, advanced their knowledge of the topic, and identified gaps in performance prior to a more public oral presentation. Future directions include comparing subsequent oral presentation performance relative to internal historical controls.

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## **Poster 37 - Combined lecture and simulator direct ophthalmoscopy training: A novel approach**

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### **Objective or purpose of innovation**

The current approach to medical student direct ophthalmoscopy (DO) training routinely results in medical professionals unable to perform this basic and vital examination technique.<sup>1-2</sup> We present a novel approach that incorporates new simulator technology with lecture based learning to train medical students.

### **Instructional methods and approach**

At our institution DO was previously taught to first-year medical students using a brief introductory lecture followed by a practice session with students performing dilated exams on classmates. After the purchase of two DO simulators, OphthoSim (OtoSim, Inc; Toronto, Ontario, Canada) and EyeSi (VRMagic; Mannheim, Germany), a new educational approach has been introduced. First-year medical students will proceed through a four step training program. (1) A pre-recorded lecture detailing normal fundus anatomy, direct ophthalmoscope features, and instructions for DO. This will be followed by a short quiz to ensure understanding. (2) Small group simulator sessions with both devices to practice fundamental ophthalmoscopy techniques discussed in lecture. (3) Real world practice with dilated examination of classmates. (4) Practical exam on a simulator to ensure proficiency at recognizing key fundus landmarks. Failing students will be required to take a remediation course utilizing the simulator to further train DO



technique.

### **Educational Outcomes**

The program has been piloted on 143 students and the response from students and faculty has been overwhelmingly enthusiastic. During this process, it has become clear that the two simulators offer different strengths and weaknesses. Each institution needs to weigh these prior to purchase, but with either system, creating an educational plan that takes advantage of the benefits is paramount.

### **Strength of Innovation**

This novel approach offers multiple educational strategies to improve student competency with DO. The need to purchase a simulator may be a hindrance to some programs; however, we feel this is vital to successful training. Additionally, it is unclear whether nonmydriatic fundus photography will eventually make DO obsolete for non-ophthalmology specialties.<sup>2-3</sup>

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### **Poster 38 - A hybrid preceptor-simulated clinic for the deliberate teaching and practice of introductory clinical skills**

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### **Objective or purpose of innovation**

It has been difficult to get community preceptor sites to teach clinical skills due to productivity demands, the EMR, and our rural location. We created a hybrid preceptor-simulated clinic for students to receive consistent, comparable clinic experiences in our Doctoring course.

### **Instructional methods and approach**

Our clinic runs 4 days/ week and requires 3 preceptors, 6 rooms, 6 simulated patients and 2 clinic managers/day. Students in pairs attend 10 clinics over 8 months and see 2 patients/session. Preceptors supervise 2 student pairs in two adjacent rooms, observing and providing immediate feedback. Students also receive feedback from the patients and from peers. History, physical exam and presentation skills are practiced each session. A competency based tool provides formative assessment, every third session. A comprehensive summative assessment is planned after the tenth session. Students will then transition to community clinics for the rest of Year 1 and 2. Students' clinical skills are assessed with an end of Year OSCE.

### **Educational Outcomes**

Students value direct observation and feedback from preceptors, patients and peers. They felt the safe learning environment and guided practice would help ready them for their eventual community clinics. Preceptors note the joy of teaching without the burden of time pressures and EMR documentation. Coordination of cases with our syllabus and the ability to create "longitudinal" simulated patient cases were a bonus.

### **Strength of Innovation**

A hybrid preceptor-simulated clinic for deliberate practice of introductory clinical skills is a timely solution to the national challenge of recruiting clinical sites in the pre-clinical years. This innovation is generalizable and scalable. Funding this program at our institution has been a break even proposition in terms of cost.

We are studying best preceptor practices for this model, optimal cases and how to fine tune the schedule. We are studying outcomes in terms of satisfaction, changes in performance and preparedness for clinic in year 2.

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### **Poster 39 - Psychiatry Initial Clinical Experience (ICE): Building Foundations for Future Success**

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#### **Objective or purpose of innovation**

The Initial Clinical Experience (ICE) provides longitudinal experiences in core clinical disciplines during preclinical years. We designed an early immersion in clinical psychiatry that achieved three goals: perform a psychiatric HPI with ROS; orally present and document the mental status exam (MSE); and appreciate how psychiatric diagnoses are made.

#### **Instructional methods and approach**

Psychiatry ICE draws upon key learning principles: integration with foundational science<sup>1</sup>; deliberate practice with near peer and expert coaching<sup>2</sup>; authentic, real-world tasks<sup>3</sup>. It occurs during the MS2 neurology/psychiatry basic science course. 2-3 students work with a single preceptor, meeting weekly for six half-day sessions. After preceptors demonstrate, every session has the following format: each student interviews and presents an MSE with direct observation and feedback enhanced by the use of direct observation tools. Scaffolds (e.g. MSE template; observer's interview checklist) are initially provided but later withdrawn to support growth.

#### **Educational Outcomes**

Students: (N=98) 12 questions' mean score was 4.9/5; this was the highest rated ICE experience of the year.

Faculty (N=22): supported that ICE was a meaningful teaching experience (4.73/5).

All students exceeded the threshold deemed passing on the summative clinical skills exam, demonstrating they learned history taking and the MSE.

#### **Strength of Innovation**

Psychiatry ICE allows robust achievement of our goals. Student and faculty comments indicate that direct observation with individualized coaching/feedback played a large role in the program's high rating.

Areas for improvement include continued faculty development to further standardize student experience and building in space for students to reflect on emotional components of this experience.

This curriculum can be adapted across disciplines to provide a strong foundation for clinical years, provided there is departmental support for protected faculty time. Sustainability of protected faculty time and patient availability are challenges, but as demonstrated, this approach can influence career choice. 5.7% of our graduates pursue psychiatry as a career, ranking above the national average.

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## **Poster 40** - The Effects of Peer Assisted Learning on Objective Structured Clinical Examinations

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### **Background or theoretic framework and importance to the field**

To determine whether second-year medical students serving as tutors in a Peer-Assisted Learning (PAL) program for physical exam skills effects the Objective Structured Clinical Examination (OSCE) scores of those tutors. Additionally, we aimed to determine if participation in the PAL program specifically impacted OSCE core competencies: history, communication, and physical exam.

### **Methods**

IRB-exempt, retrospective mixed methods study. Students voluntarily participated in a PAL program during their second year of medical school. Attendance was compared to their OSCE scores and then compared to controls. Qualitatively, students completed a Likert-scale survey on the perceived effects of PAL program participation. One-way analysis of variance (ANOVA) test and Mixed Model ANOVA was used for statistical analysis.

### **Results**

A total of thirteen students (five female and eight male) were included in the PAL group. All participants were second-year medical students. Six teaching sessions were hosted, mean number of sessions attended per participant was 1.62. Control group included 23, randomized students that did not participate in the PAL program. There were no significant differences between groups prior to starting PAL program ( $p=.581$ ). After PAL program completion, mean OSCE scores were 96.15% and 96.09% in PAL and Control group, respectively. No significant differences between PAL and Control group OSCE scores ( $p=.431$ ). No significant differences between PAL and Control group OSCE core competencies: history, physical exam, and communication ( $p=.170$ ;  $p=.540$ ;  $p=.847$ , respectively). Survey was completed by 12/13 students. 10/12 students "somewhat agree" that program participation improved their OSCE scores. All students either "strongly agree" or "somewhat agree" program participation improved confidence.

### **Conclusions**

Participation as a PAL tutor improved self-reported confidence in clinical skills; however, there was no significant difference in OSCE scores or core competencies for mentors. Further research is needed to determine if objective, measurable benefits can be achieved from participation as a PAL tutor.

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## **Poster 41** - Introducing First Year Medical Students to Surgery Via A Hands-On Surgical Skills Workshop

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### **Objective or purpose of innovation**

Medical school pre-clinical years are traditionally rooted in didactic lectures with limited hands-on exposure. Introduction to clinical medicine courses are standard in most curricula, providing controlled clinical experiences in the pre-clinical milieu. Students interested in surgery in the pre-clinical years typically seek out extracurricular experiences, however, their clinical exposure is limited. A standardized optional workshop for first-year medical students interested in surgery permits learning of basic surgical skills, suturing techniques, operative decorum and fosters early interaction with surgical faculty.

### **Instructional methods and approach**

The optional surgical skills workshop is offered every 3-4 months. Surgical faculty volunteer as instructors. Each 100-minute workshop is capped at 25 students (goal of 1 faculty to 4-5 students). A handbook is provided, reviewing Operating Room Etiquette, surgical instruments, and suturing technique. Knot-tying and suturing videos are provided beforehand. A short didactic overview at workshop onset covers basic surgical skills, instrumentation, knot-tying, and suturing techniques. Each student has a workstation containing basic surgical instruments, suture material, and a pig's foot or synthetic tissue on which to practice. Instructors circulate to provide guidance and technique demonstration.

#### **Educational Outcomes**

Students provide online feedback, which has been overwhelmingly positive. Students have expressed that this provides a unique chance to work with their hands, learn tangible skills, gives them confidence in starting the surgical clerkship and interacting in the operating room. The workshop also gives students the opportunity to meet surgical faculty and interact with them in a stress-free environment.

#### **Strength of Innovation**

Providing first year medical students with an optional surgical skills workshop permits early exposure to the field of surgery. Areas of improvement include analysis of students pre- and post-workshop providing quantification of workshop impact on knowledge base and skill acquisition, while longitudinal follow-up would provide insight into workshop impact on future career plans. The workshop can be easily replicated and offered within any medical school curriculum.

#### **References**

Please list references below.

N/A

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### **Poster 42 - Thinking Critically about Critical Thinking: A New Course for Pre-clerkship Medical Students**

P. Haidet, D. Wolpaw

Pennsylvania State University College of Medicine

#### **Objective or purpose of innovation**

Physicians increasingly need to critically think through their decisions. We designed a course to foster habits of mind related to critical thinking.

#### **Instructional methods and approach**

We designed a 6-week course for first-year medical students, based on the idea that critical thinking enables an appropriate "toggle" between fast and slow thinking (Kahneman, 2011), and that five habits of mind (curiosity, open-mindedness, intellectual humility, balanced skepticism, metacognition) foster this. We used the Case-Based Collaborative Learning method (CBCL, Acad Med 2016;91:723-9). Students completed writing assignments designed to stimulate practice of the habits of mind. We used a peer-review process to foster students' conceptual depth and understanding.

#### **Educational Outcomes**

145 students completed end-of-course evaluations (100% response). 46% found the CBCL cases and 37% found in-class discussions to be very- or extremely-useful to their understanding the five habits of mind. 71% rated the habits of mind to be very- or extremely-relevant to their future practice of medicine, but only 45% rated them as such for board-type exams. 73% reported practicing the habits of mind at least occasionally. One student noted: "On the [cardiology block] exam, I practiced the technique of listing reasons that support/don't support my [fast-thinking] hypothesis ... I was able to physically see why one choice was better than the other." Out of six possible physician attributes, students rated critical thinking highly.

#### **Strength of Innovation**

Students found the "habits of mind" framework to be useful for clinical work, but less so for board-type exams, although qualitative comments suggested that they were using course concepts to aid progress in concurrent biomedical science-oriented courses. The CBCL framework, while creating high degrees of interaction, was perceived by students as only moderately successful. Our future work will focus on course framing and perceived relevance of the CBCL activities, as well as explicitly tracking practice of the five habits.

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**Poster 43 -** Group vs. Individual learning of an Online Clinical Reasoning Module: A randomized study

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**Background or theoretic framework and importance to the field**

The Core + Clusters model teaches a purposeful core exam alongside presentation-based history and physical exam maneuvers called diagnostic clusters (clusters)<sup>1</sup>. This model seeks to enhance clinical reasoning. It is unknown how to most effectively and efficiently teach clusters; some employ resource-heavy approaches utilizing small groups or standardized patients<sup>2</sup>. On-line teaching reduces resource utilization and allows asynchronous learning, yet loses group learning and socialization<sup>3</sup>. We compared outcomes for students randomized to learning an online diagnostic cluster individually with those completing the module in groups.

**Methods**

We created an online cluster on vertigo featuring background information and simulated cases using Articulate Storyline. We randomized 150 2nd-year medical students to: A) individual arm completed the module individually, or B) group arm completed the module in pre-existing groups of 4 students. Students completed a post-cluster survey and a formative OSCE on vertigo. OSCE performance or study involvement did not affect grades. Columbia University IRB approved the study. We used SAS for data analyses and t-test and chi-square tests were applied for significance-testing.

**Results**

Qualitative comments revealed more enjoyment and engagement in the group arm. No significant difference was observed between groups in OSCE scores, time spent, or desire to experience more modules ( $p > 0.05$ ). A non-significant trend toward improved history-taking checklist was seen in group arm.

**Conclusions**

Qualitative data revealed increased enjoyment and engagement in the group arm. No significant differences were seen between arms, though a non-significant trend toward improved history-taking was seen in the group arm. The lack of difference in arms may be secondary to an underpowered study. Further research may examine whether specific group-level activities might leverage benefits of group learning. Traditional individual online training uses less resources (time, space, and faculty oversight), but loses benefits of group dynamics. Here we used online training and leveraged the group dynamics that can facilitate learning.

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**Poster 44 -** A comparison of low-cost modalities for teaching the intradermal injection to medical students in innovative ways.

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Rutgers New Jersey Medical School

**Objectives:**

When teaching intradermal injections to medical students, preliminary simulation training is beneficial, as in other skill-based procedures [1][2]. Commercial simulators are often expensive, and lower-fidelity simulation often produces similar results to high-fidelity [3]. There is a dearth of studies comparing intradermal injection teaching modalities. We present a comparison of innovative, low-cost tools for teaching with reasonable fidelity.

**Instructional methods and approach:**

We compared three intradermal injection modalities, pre-screened by practicing physicians:

(1) Silicon injectable pad, used previously for teaching (baseline): It has poor visual and technique fidelity (inability to raise a bleb during injection). (2) Nitrile glove, stretched flat on a towel: Technique: inject water inside the flattened glove finger; high technique fidelity (towel gets wet when injection is too deep), but poor visual fidelity (inability to raise a bleb). (3) A pre-cooked chicken hot dog (picked for low cost), cut lengthwise: High technique and visual fidelity (a bleb can be raised). Second-year medical students practiced all 3 modalities, in a crossover-setup, anonymously rating the usefulness of each modality against the others on a Likert scale (0-5).

**Educational Outcomes:**

With 66 students completing the survey, the hot dog was rated the most useful teaching modality (mean: 4.05),

followed by the Injectable Pad (mean: 2.98), and then the Nitrile Glove (mean 2.43). The rating difference was

significant ( $p < 0.05$ ) as assessed by the T-test and the Kruskal-Wallis test.

**Strength of Innovation:**

The hot dog, used by others anecdotally, but without prior assessment in literature, was rated the most useful teaching tool, likely due to combination of both visual and technique fidelity. The glove was rated least useful, likely due to lack of visual fidelity. The hot dog could be a feasible, low-cost, first step in teaching the intradermal injection to pre-clerkship and clerkship students. For future studies, a formal assessment of technique by preceptors would be a beneficial addition.

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**Poster 45 - Students as Patient Educators**

A.Thompson, J.Hafler, D. Dunne  
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**Objective or purpose of innovation**

The goal of this project was to design and implement a curriculum that provided an innovative framework for medical students to teach patients about their illnesses prior to discharge.

**Instructional methods and approach**

Medical students have little formal education on how to effectively teach their patients although they often have the most time available on a busy inpatient ward to do so. To our knowledge, this is the first study that not only evaluates a curriculum for students to learn how to teach patients, but also assesses student and patient outcomes, including learning, communication, and satisfaction with the overall clinical experience.

**Educational Outcomes**

Third year students were invited via email to participate during their 8-week inpatient Internal Medicine Clerkship. Students had the opportunity to attend the curriculum, which was comprised of three parts: a

30 minute classroom session, an observed teaching of a patient, and feedback on the teaching. Eligible patients were consented, and the students were observed by the first author. Qualitative written surveys that included both Likert and descriptive questions were completed by both the patient and the student.

### **Strength of Innovation**

To date, 25 medical students have participated in the curriculum and have reported that the sessions are highly successful. Additionally, six students have had the opportunity to teach patients, be observed, and receive feedback. Both the students and patients have been very satisfied with the process. We anticipate data from 20 more student/patient pairs by Spring 2018.

In addition to the positive reactions from students and patients, the strengths of the innovation include continued communication skills development and increased provider-patient interaction. Increased preceptor/resident awareness and formalized incentives for curriculum application would both improve the implementation of the innovation. This curriculum can be easily adapted to other rotations and hospitals.

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### **Poster 46 - Hands on the Probe: Replacing ultrasound demonstration with exploratory learning**

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Columbia University College of Physicians & Surgeons

### **Objective or purpose of innovation**

Medical students, regardless of future specialty, can benefit from hands-on ultrasound training. While the importance of a comprehensive ultrasound curriculum is widely accepted (1), four in ten medical schools have yet to implement formal ultrasound teaching, citing financial and time constraints (2). We propose a model of ultrasound education that can be accomplished despite these limitations.

### **Instructional methods and approach**

We integrated ultrasound sessions into the first-year anatomy course, covering cardiac, pulmonary/vascular, FAST, and ocular ultrasound. Sessions consisted of a brief introduction followed by 15 minutes of hands-on ultrasound. We created instructional manuals for students and lesson plans for instructors. Assessment included anonymous pre- and post-session surveys of image interpretation and attitudes towards ultrasound learning.

### **Educational Outcomes**

150 medical students completed the ultrasound sessions in groups of four, resulting in each student having hands-on-the-probe time. Using manuals and with minimal instructor guidance, students practiced ultrasound scanning techniques to obtain bedside imaging on each topic, which we aligned with the existing anatomy curriculum. Instructors provided first-year students with on-the-spot feedback.

### **Strength of Innovation**

Our goals to teach ultrasound and increase awareness of its clinical importance were met without new funding or added classroom time. The improvement in students' ability to obtain and interpret images supports existing literature that pre-clinical students can effectively learn focused ultrasound interpretation (3). Future directions include incorporation into a longitudinal ultrasound curriculum.

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emergency ultrasound training feasible as part of standard undergraduate medical education? Journal of Surgical Education, 2010; 67(3): 152-156.

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**Poster 47 - Clinically Reimagined Apprenticeship For Physician Training**

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**Objective or purpose of innovation**

A project that hopes to contribute to efforts for reimagining medical education. It is designed to introduce a patient-centered, interdisciplinary and apprenticeship-based curricular model. A clinically-based curriculum for integrating the study of foundational sciences with advanced clinical knowledge. Designed around the differential diagnosis, students develop narrative-based clinical reasoning skills, while fostering the clinical environment as the optimal learning forum for acquiring medical knowledge.

**Instructional methods and approach**

A four-week extracurricular summer program designed by students for students between their first and second years of medical school. The curriculum consists of three distinct activities:

1. Clinical apprenticeship: One-on-one learning with a faculty member in the department of the student's choosing. Students see patients, present to their attendings, and play an active role in forming a differential diagnosis and treatment plan.
2. Medical knowledge didactics: Upperclassmen guide small teams of students through the foundational scientific content. Diagnostic concept maps, designed specifically for this program, create an integrated foundational science and clinical knowledge curriculum.
3. Case-based integration: Team based clinical simulation. Each participant will rotate through playing the part of the patient, medical student, resident, and attending using a clinical vignette written by a student based on their own clinical experiences. The goal is to enhance their acquisition and transfer of medical information in the clinical setting.

**Educational Outcomes**

The first two cohorts consisted of 16 and 37 students respectively. Outcomes were based on serial, anonymous survey responses. Responses showed strong empiric evidence for efficacy of the program and its educational paradigm. It further suggested that participants felt that educational effectiveness of this experience enhanced that of their general medical school curriculum.

**Strength of Innovation**

This summer anticipates a larger cohort of students with more formalized data collection and hypothesis driven testing. Ultimately, we feel that this model has demonstrated its worthiness and consideration for expanded implementation.

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**Poster 48 - Examining Early Clinical Exposure in Community Settings**

M. Etheridge, A. Motta-Moss  
CUNY School of Medicine

**Objective or purpose of innovation**

To provide insight into the value of early clinical training in community settings and its implications for students' lifelong personal and professional growth.



### **Instructional methods and approach**

Physician training happens in a wide variety of environments and early clinical exposure is an important part of medical education. The challenge for educators is to improve the quality of clinical training by providing students with an understanding of and the ability to adapt practices to new conditions and diverse patients. To address this challenge, the CUNY School of Medicine (CSOM) introduced the Longitudinal Clinical Experience (LCE) in its BS/MD program two years ago. Students are assigned to specific community health centers/clinics (N=21) in under-served communities of New York City, beginning in the last year of undergraduate education and continuing through the second year of medical school. Students are paired with a clinical preceptor for the duration of LCE for continuity of experience and interpersonal development.

### **Educational Outcomes**

Data were provided during the first two years of LCE implementation including: student feedback provided by clinical preceptors, student perceptions of the utility of early clinical exposure and the variety of experiences across clinical sites, and the application of skills during the Objective Structured Clinical Examinations (OSCE).

### **Strength of Innovation**

In addition to basic clinical skills, early clinical experience in community settings is expected to increase students' recognition of the unique needs of diverse populations, self-awareness, communication skills, professionalism, and life-long learning. This paper illustrates this experience and its contributions to clinical training in pre-clerkships.

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### **Poster 49 - The new medical school curriculum: What's an evaluator to do?**

M. Etheridge, A. Motta-Moss  
CUNY School of Medicine

### **Objective or purpose of innovation**

To provide a framework for using evaluation data to identify best practices and/or corrective actions. Items related to selecting a comprehensive information management system, integrating faculty feedback in the development of evaluation forms/procedures, and ensuring that evaluations are deployed according to the schedule of courses are discussed here.

### **Instructional methods and approach**

Recent changes in population, science, and federal policies have significantly impacted medical education. Academic implications of these changes include early exposure to clinical practice, a focus on active learning and skills acquisition, and an emphasis on life-long learning. Challenges faced by evaluation staff include the variability of course structures as well as the complexity of course schedules and settings.

### **Educational Outcomes**

A multi-method approach was developed at the CUNY School of Medicine (CSOM) to assess student experiences in the pre-clerkship portion of the curriculum. To date, nearly 200 evaluations have been completed across teaching modalities, including faculty/clinical preceptors assessing students (n=56), students assessing faculty/clinical preceptors (n=135) and student peer evaluations (n=4). The completion rate across assessments ranged from 95%-100%. Domains assessed include: professionalism, identification of one's own strengths and areas of improvement, acceptance of and appropriate response to feedback, aptitude for self-reflection, appropriate use of time management, basic skills in medical interviewing, patient counseling and physical examination, and compliance with federal regulations regarding patient care.

### **Strength of Innovation**

Tailored evaluations are required to assess student experiences in the current medical school pre-clerkship curriculum. Reframing the basic science/clinical dichotomy to an applied-active learner model may yield benefits in training competent physicians. Mechanisms for sharing course feedback with different constituencies within the medical school are identified. Limitations to this study include that it relies primarily on survey data from first two years of medical education, which may not completely capture curricular strengths and deficiencies.

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#### **Poster 50 - Knowledge Retention Across Curricular Models: An International Collaboration**

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#### **Objective or purpose of innovation**

Anatomy is one of the first subjects taught in medical school, and its retention over time has been strongly debated (Waterston and Stewart, 2005). Literature also shows that correlating clinical and anatomical sciences throughout early medical education may improve anatomical knowledge retention (Jurjus et al., 2014; Jurjus et al., 2016; Zumwalt et al., 2010). With major medical school curricular changes happening globally, more quantitative data confirming this correlation is needed.

#### **Instructional methods and approach**

The medical curriculum at The George Washington University (GWU) School of Medicine recently transitioned from a discipline-based curriculum to an integrated system-based one, and an evaluation of anatomical knowledge retention between classes in the different curricula was conducted. Students from the last class of the discipline-based curriculum and those from the first and second classes of the new, integrated curriculum completed a 27-question test before starting their clinical rotations. Scores were then analyzed and compared between classes.

#### **Educational Outcomes**

The results demonstrated a significant increase in retention ( $p=0.012$ ), with a mean score based on the old curriculum of 56.28% (SD=24.6%), as compared to a mean score of 63.98% (SD=23.48%) based on the new curriculum.

#### **Strength of Innovation**

The results show that integration enhances retention in the anatomical discipline, but to strengthen these findings, we are conducting an international multicenter study, in collaboration with four other medical schools that have very different curricula: The American University of Beirut (Lebanon), Balamand University (Lebanon), Palermo University (Italy), and University College Cork (Ireland). A uniform baseline pre-test will be given at the end of pre-clinical anatomy instructions and a post-test will be given prior to students going into the relevant clinical rotations, and retention drop will be measured accordingly. The effectiveness of different curricula will be evaluated by comparing baseline and final test scores. This multicenter study will offer unique insights and comparisons of various curricular models.

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### **Poster 51** - Optimizing the First 100 Weeks of Medical Education for Clinical Years Success

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#### **Background or theoretic framework and importance to the field**

The past decade has seen a push for earlier integration of clinical training with basic sciences in undergraduate medical education [1]. The Zucker School of Medicine at Hofstra/Northwell has pioneered this approach through learner-directed case-based learning, small-group physical diagnosis sessions, and communications role-play during the First 100 Weeks (FOW), or first two years of medical school [2]. Even with this innovative strategy, we recently found that third year medical students were not adequately prepared for the most common pathologies and patient-physician conversations encountered during clerkships. Our study aimed to identify these content areas within each clerkship and implement FOW curricular changes to address them.

#### **Methods**

Focused interviews were conducted with clerkship directors in Medicine, Surgery, Pediatrics, Psychiatry, OB/GYN, and Neurology. They were asked to identify the two most common clinical conditions, "chief complaints", physical examinations, and patient-physician discussions that are encountered by third year students during their inpatient rotations. A thorough review of the FOW curriculum was then completed to identify existing curricular and assessment gaps with respect to the areas identified by the clerkship directors.

#### **Results**

Glaring deficiencies were identified in the FOW pertaining to all 6 specialties, most notably in material related to OB/GYN, Pediatrics, and Surgery. In particular, students were minimally exposed to topics like vaginal bleeding, childhood obesity, and cholecystitis. Additionally, the FOW curriculum inadequately prepared students for common conditions like asthma and pneumonia. These curricular deficiencies were presented to the FOW course directors in a structured academic retreat; suggested modifications to small-group sessions and assessments were provided with plans for implementation in the subsequent academic year.

#### **Conclusions**

Innovative, integrated curricula can still benefit from revision in order to optimize learners' preparation for clerkships. Working with clerkship directors is beneficial in creating targeted modification of the preclerkship curriculum to better prepare students for clinical rotations.

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### **Poster 52** - The association of lecture attendance and exam performance among medical students of different learner types

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#### **Background or theoretic framework and importance to the field**

Medical students who question the educational value of lectures often vote with their feet and learn using other resources. Studies in fact show only a weak or non-existent correlation between lecture attendance and knowledge-based exam performance. We hypothesize that students with an aural/auditory learning style ("A-learners") are most likely to benefit from lecture attendance.

#### **Methods**

During our pulmonary and renal courses, students recorded their attendance at non-mandatory lectures using the "TurningPoint" audience-response system. Students with an A-learner preference were identified using the Visual, Aural/Auditory, Read/Write, Kinesthetic (VARK) questionnaire. We used regression analysis to test the association between their exam scores and the following variables: lecture attendance, MCAT percentile and A-learner status (yes/no). Interaction terms for learning preference by attendance were computed and added in a separate regression step.

#### **Results**

Among 90 students consenting to the study, 82 completed the VARK questionnaire. The strongest predictor of exam score was the MCAT percentile. A-learner students did not attend lecture more often than others. There was a statistically significant relationship between being an A-learner and pulmonary exam performance, controlling for class attendance and MCAT score ( $p < .05$ ); this relationship was marginally significant for the renal exam ( $p = .07$ ). However, we found no significant interaction between attendance and being an A-learner on performance across both exams, indicating that attendance did not predict exam performance more strongly among A-learners.

#### **Conclusions**

Medical students may derive differential benefit from attending lecture, depending on learning preference. We did not find that lecture attendance benefitted the exam scores of A-learners more than others. A possible explanation for this is that students identified as A-learners did not attend lecture more often than others. We studied a single class of students in only two courses, which limits our study's generalizability. It is unclear whether assessing students' learning preference informs them about the benefit of lecture attendance.

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### **Poster 53 - What is Success in Medical School? Towards a Meaningful and Useful Definition**

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#### **Objective or purpose of innovation**

While defining and measuring student success is crucial to all educational programs, there is little consensus around the matter. Scholars have identified various criteria that have been used to either define success, predict success, and/or evaluate students' competence in graduate school, including but not limited to grades, entrance exam scores, performance on qualifying/licensing exams, progress toward the degree/degree attainment, research quality, post-graduate placements, senses of personal fulfillment and accomplishment, and so on. Our study seeks to develop valid, meaningful measures of success in medical school by charting different ideas of success as they manifest in the perspectives of stakeholders throughout the institution. Do admissions officials, students, and faculty privilege one definition of success over another? Do the subgroups agree on the basic criteria of success or do they hold competing views? And how do these views ultimately align with the institution's mission?

#### **Instructional methods and approach**

Data will be collected via surveys and focused discussion groups consisting of students and teaching faculty from each of the four years of UME along with administration and admission officials. Subjects will

explain how they personally perceive success and how they believe other stakeholders within the institution perceive success. Definitions of success will be identified and associated with the subjects' institutional role and will be analyzed to determine to what degree definitions converge or diverge among the stakeholders.

### **Educational Outcomes**

This project will provide a model for medical education programs to map competing ideas of success, determine their alignment or departure with institutional goals, and establish recommendations for building consensus around what defines success in medical school.

### **Strength of Innovation**

It is our hope that this project will broaden definitions of success in medical school, thereby informing current discussions about meaningful, reliable, and scientific ways to define, analyze, and evaluate success in medical schools in particular and graduate schools in general.

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**Poster 54** - Mapping and implementing assessment of student performance for entrustment decisions across a 4-year curriculum

C. Traba, S. Chen, A. Fayngersh, M. Laboy, D. Cennimo, S. Lamba  
Rutgers New Jersey Medical School

### **Objective or purpose of innovation**

Our goal is to map and implement student assessments for entrustment decisions across the 4 years.

### **Instructional methods and approach**

We describe our curriculum framework for EPA mapping targeted at the end of each Phase as a competency assessment for entrustment:

Phase 1 (core biomedical content): EPAs 1 (history and physical), 2 (prioritize differential diagnosis), 5 (document clinical encounter), and 6 (oral presentation) are assessed at the end of Year 1 and 2.

Phase 2 (core clerkships): EPAs 1, 2, 5, 6 with EPA3 (recommend and interpret common diagnostic and screening tests) and 10 (recognize emergent/urgent conditions). Workplace assessments including direct observations supplement the OSCE.

Phase 3 (career exploration and immersion/electives): EPAs 1, 6, 10 with EPA 4 (enter and discuss orders/discharge a patient), 8 (give or receive a patient handover to transition care responsibility) and 11 (informed consent) will assess students' readiness to enter their internship.

### **Educational Outcomes**

Structured mapping allows for students to have multiple assessment points and remediation for final entrustment.

### **Strength of Innovation**

Mapped EPA assessments, early in Year 1, allow for intentional skills teaching and reinforcement. The core clinical curriculum, builds on layered skills and competency entrustment for residency.

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**Poster 55** - Effect of Medical Student Learning Styles & Demographic Factors on Preclinical Academic Performance

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**Background or theoretic framework and importance to the field**

Among medical students, prior education and demographic factors may contribute to learning style preferences and affect academic performance. The VARK learning model defines four modalities: visual (V), aural (A), read/write (R), and kinesthetic (K). The VARK inventory has been used to study medical student learning outside of the U.S., with varying results in different populations. This study looks at whether VARK learning style preferences contribute to differences in academic performance among subpopulations in an accredited U.S. allopathic medical school.

**Methods**

IRB: L-11,672. The VARK questionnaire was administered to rising second year medical students from three consecutive graduating classes. Academic performance and demographic data were obtained. Socioeconomic disadvantage was determined by receipt of AMCAS application fee waivers and/or students who self-identified as such on their application. All data was correlated and de-identified prior to analysis.

**Results**

In total, 494 medical students, including 21% underrepresented in medicine (URM), were analyzed. The preclinical GPA distribution for URM students was significantly lower than that of non-URM students ( $p < 0.0001$ ). Socioeconomically disadvantaged students had significantly lower preclinical GPA than non-disadvantaged peers ( $p < 0.0001$ ).

Among participants, 68% were multimodal in preference while 32% were unimodal. Most multimodal learners were quadmodal (60%). Kinesthetic learning style was the most prevalent preference. Among non-disadvantaged students, kinesthetic learners had significantly decreased academic performance ( $p = 0.0198$ ). This effect was not seen among disadvantaged students. Among science majors, kinesthetic learners had significantly lower GPA distribution when compared to non-science majors ( $p = 0.0049$ ). Students who preferred the read-write method had a higher preclinical GPA distribution compared to those who did not ( $p = 0.0252$ ).

**Conclusions**

The majority of preclinical students exhibited multimodal learning style preferences. Read-write learners may have an advantage in the preclinical curriculum. However, the kinesthetic learning style may be an important mediator in the variation of academic performance between specified subgroups.

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**Poster 56** - Taking the USMLE Step 1 before or after clerkship experience: Does the timing of the USMLE Step 1 influence student perceptions of Basic Science?

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**Background or theoretic framework and importance to the field**

Basic science is the foundation for clinical reasoning and diagnostic accuracy (1). Perceived value of basic science has implications for learning and achievement (2). Student perceptions of the value of basic science may be shaped by the timing of the USMLE Step 1 exam. This study compares students' perceived value of basic science in schools who take the USMLE Step 1 exam after core clerkships (AC) and those who take it before clerkships (BC).

### **Methods**

A 22 item anonymous questionnaire assessed student perception and integration of basic science using a 5-point Likert scale. Fourth-year students from three medical schools (two AC, one BC) participated in the study after having completed Step 1 and core clerkships. Independent t-tests were calculated for difference in combined items measuring constructs after verifying that the two AC schools were not significantly different.

### **Results**

Surveys were completed by 120 AC (41%) and 84 BC (60%) students. Students who took Step 1 before clerkships were more inclined to see value in basic science. This is evidenced in AC students more strongly agreeing that basic science has minimal value for clinical knowledge ( $t = -5.394, p < .001$ ), less strongly agreeing that basic science is foundational to practice ( $t = 2.80, p = .006$ ), and less strongly endorsing physicians' integrating basic science ( $t = 2.31, p = .022$ ). BC students reported stronger agreement that basic science is educationally valuable and a greater integration of their knowledge during clerkships ( $t = -2.04, p = .043$ ).

### **Conclusions**

The structure of a medical school's curriculum may influence student perceptions of basic science, which has implications for learning and long-term retention (3). Taking Step 1 after clerkships may promote lower perceptions of the clinical value of basic science. It may also result in students less purposefully recalling and integrating basic science knowledge during clerkships. Future studies will include more medical schools to account for school culture.

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**Poster 57** - Studying the studious: an observational study of test preparation and USMLE Step 1 exam performance

C. Augustin, J. Harnisher, C. Cimino  
Kaplan Test Prep

### **Background or theoretic framework and importance to the field**

Approximately 41,000 students prepare for and take the USMLE Step 1 exam each year. Researchers have typically focused on two primary areas of study regarding Step 1 success: external factors [1] such as undergraduate GPA, preclinical GPA, and MCAT score, and recall-based preparation factors [2] (e.g., "how many hours did you study") captured through posthoc surveys. These approaches do not provide a clear assessment of the value of test preparation for Step 1 exam.

### **Methods**

We approach the question of "does test prep matter?" with an observational study of students ( $n = 454$ ) across four 2015 cohorts designed to evaluate the efficacy and effectiveness preparation using a commercially available question-bank (Qbank). Qbank was provided to all second-year students in the four cohorts and question usage was evaluated against official Step 1 scores.

### **Results**

Findings: Top-scoring students prepared more, as indicated by the number of Qbank questions answered. Top-scoring students prepared smarter, as indicated by the number of questions answered

correctly as well as the breadth of topics covered. Finally, while preparing more questions was associated with scoring higher on the Step 1, spending more time per question was not.

### **Conclusions**

**Significance:** These findings demonstrate the value of rigorous, structured preparation and allow us to make broad suggestions as to appropriate question dosage for effective test preparation. **Limitations and extensions:** Additional research will determine how and whether the impacts of preparation using Qbank compare as an indicator of Step 1 success when controlling for other known indicators such as MCAT score and student GPA, as well as demographic factors. Research can also be extended by collecting larger data sets over multiple years, which would produce more robust results and the ability to measure the impacts of changes in the Qbank intervention, such as possibly providing more direction in the proportionality of question topics covered by students.

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## **Poster 58 - Introduction of Mandatory Wellness Sessions into Pre-clerkship Years**

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CUNY School of Medicine

### **Objective or purpose of innovation**

Wellness sessions are being incorporated into medical school curricula to improve student performance, minimize stress, and reduce burnout(1). Implementation barriers include lack of compliance, accessibility, interest, and selection bias, thus making it difficult to determine their impact. Previous reports suggest that barriers may be overcome by providing more appealing programs and including them in core curricula(2). The CUNY School of Medicine (CSOM) has implemented student-designed, mandatory, pre-clinical wellness sessions within the organ-systems curriculum to address these barriers.

### **Instructional methods and approach**

In May 2017, a student-run Wellness Committee (WC) convened to develop wellness activities tailored to the interests of CSOM students. The WC decided to integrate morning wellness activities into the week-long intersessions that follow organ module exams. M1 and M2 students are required to select at least one, hour-long activity. Activities include mindfulness, spinning, walking, yoga, and Zumba. Following the sessions, students were invited to provide feedback via an online survey. Students were asked to score their satisfaction (very dissatisfied to very satisfied) of the activity and quality (poor to excellent) of instructor on a 4-point scale. An open question solicited qualitative comments.

### **Educational Outcomes**

Of 136 participants, 109 (80%) completed the survey. Of those who participated in spin, walking, and yoga, 100% were satisfied (either "satisfied" or "very satisfied") with their activity. For mindfulness and Zumba, 85.7% and 90%, respectively, were satisfied. Overall, 96% rated their instructor's quality as either "good" or "excellent." Qualitative feedback was provided by 44 students (40%). Suggestions for improvement included incorporating sports and providing more scheduling options.

### **Strength of Innovation**

Our wellness sessions resulted in excellent adherence and broad satisfaction. Student-driven sessions increase their appeal; promote ownership over individual stressors; and emphasize self-care. Going forward, we hope to widen the scope of activities offered and include faculty, staff, residents, and attending physicians to create a culture of wellness within a supportive community.

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**Poster 59** - Advancing with the Times: Integrating Bleeding Control into EPA 10 Assessments

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**Objective or purpose of innovation**

Recent events have made bleeding control a topic of national concern. The Hartford Consensus, led by the American College of Surgeons (ACS), has pioneered hemorrhage control through its bleeding control (BCON) program. Medical students may be immediate responders. As part of the Core Entrustable Professional Activities (EPA) for Entering Residency project identifies, EPA 10 requires students to recognize a patient requiring emergent care and initiate evaluation and management. A gap exists in teaching hemorrhage control as part of EPA 10 skills.

**Instructional methods and approach**

Our objective was to implement and assess BCON skills through EPA 10 curriculum integration. Rutgers NJMS EPA 10 skills curriculum includes BLS certification and ACLS skills taught using simulation exercises and assessed with direct observation using competency checklists in 3rd and 4th year. We use a hybrid BCON course with a podcast, online quiz, and live skills practice to teach the BCON curriculum in 1st year. Skills include direct pressure, tourniquet application, and wound packing. There is a 1:8 facilitator to student ratio with trained facilitators mirroring ACS BCON course requirements. BCON skills will be assessed in 3rd and 4th year. A survey assessed satisfaction with the BCON program using statements rated on a scale 1 (strongly disagree) - 10 (strongly agree).

**Educational Outcomes**

Of the 174 student participants: 99% of students felt the course taught BCON skills effectively (rating > 5); 93% felt engaged; 85% were comfortable performing BCON in real life. BCON skills will be assessed during the Year 3 and Year 4 integrated EPA OSCEs along with BLS and ACLS skills.

**Strength of Innovation**

It is feasible to implement teaching of BCON skills using a hybrid format. We recommend BCON as an essential emergent care skill that is ideally integrated into competency assessment for EPA 10.

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**Poster 60** - Use of a "placemat" as teaching tool in a preclinical seminar reinforces student learning

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**Objective or purpose of innovation**

In addition to the advent of online lectures, contemporary medical education is continually in flux with the development of innovative ways to teach physiology, pathology, and clinical acumen to emerging physicians. The use of an educational “placemat” during an interactive seminar has been previously used at Harvard Medical School, but has not yet been evaluated.

#### **Instructional methods and approach**

Our aim was to create a comprehensive teaching tool, a “placemat”, to help educate first-year medical students at NYU School of Medicine about the topic of diarrhea and to analyze its utility. The “placemat”, containing photographs, charts, and diagrams, was designed to accompany a one-hour seminar focused on diarrheal illness. Results of an online post-seminar questionnaire were analyzed.

#### **Educational Outcomes**

77/133 first-year medical students responded to the questionnaire. The majority felt that the “placemat” emphasized high yield information (53.9% agree, 33.3% strongly agree) and it was a helpful adjunct throughout the seminar (61.5% agree, 19.2% strongly agree). The students reported that the “placemat” encouraged active learning (41.1% agree, 11.0% strongly agree) and a broad differential diagnosis (45.2% agree, 25.7% strongly agree). The majority agreed that the “placemat” was a helpful exam preparation tool (43.8% agree, 13.7% strongly agree) and that they would like to see placemats used in future seminars (57.5% agree, 24.7% strongly agree). Most students preferred a print to an electronic version.

#### **Strength of Innovation**

We assessed the use of a “placemat” as a comprehensive visual tool supplementing pre-clinical medical education in the seminar setting. To our knowledge, this is the first publication discussing the efficacy of such a tool. Although limited by survey response rate, the majority of students felt that the “placemat” highlighted high yield clinical information, encouraged multi-modal learning, and was useful in preparing for their exam. This learning tool may be applied in future medical education settings to enhance learning.

#### **References**

n/a

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### **Poster 61 - A Patient-Centered Approach to Improving Cultural Competency in the Core Clinical Year**

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State University of New York Downstate Medical Center College of Medicine

#### **Objective or purpose of innovation**

The LCME requires that medical students develop the ability to demonstrate adequate understanding of how diverse cultures may impact patients' health (1). Medical schools include cultural competency training in the pre-clinical curriculum, but less commonly in the clinical years. Cultural competency is rarely addressed on the wards, and there's currently no construct by which students are evaluated on this competency in the clinical years. Therefore, we developed a patient-centered session aimed to help students self-assess and practice their attitude, knowledge, and skills in delivering culturally competent care. We targeted the Primary Care clerkship for this exercise since it brings healthcare providers in contact with patients in a setting conducive to establishing individualized care.

#### **Instructional methods and approach**

Students are divided into groups and assigned a cultural competency scenario: religion, sexual orientation, socioeconomic status, mental health issue, age, and disability. Within each group, one student will play the role of the “patient” while the other(s) will be the “healthcare provider.” Students will conduct a full history and, as senior medical students, be challenged with providing an appropriate plan for care in the context of cultural differences. A collective discussion on challenges faced and take-away points will follow.

#### **Educational Outcomes**

Students will rate their confidence in dealing with the culture competencies before and after the session (scale of 1-10). After the PC clerkship, they will be contacted again to rate their confidence in navigating these scenarios in a clinical setting. Responses among cohorts of students who participate in this workshop will be compared to cohorts that didn't participate, to assess the effectiveness of this model.

#### **Strength of Innovation**

Medical schools have integrated cultural competency training mainly within the foundation years (1,3). This workshop allows students to practice these skills first-hand during their PC clerkship. It can be implemented within the existing medical school curriculum and leaves room to include additional scenarios.

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### **Poster 62** - Non-Traditional Medical Student Experiences on Clinical Rotations

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#### **Background or theoretic framework and importance to the field**

According to the Association of American Medical Colleges (AAMC), the average age of matriculation was 24 years over the past four years (AAMC, 2016). This indicates that students are taking at least 2-3 years to pursue additional work or life experiences prior to entering medical school. Students with increased life experience have reported a better transition to clinical years compared to their younger counterparts (Shacklady et al., 2009).

#### **Methods**

An anonymous online quantitative survey was sent to medical students enrolled in clinical rotations at The George Washington University School of Medicine and Health Sciences from June through August 2017. Non-traditional students were defined as students that had at least one year between undergraduate study and entering medical school. Survey questions were adapted from a qualitative study on the experiences of mature-aged medical students (Jurjus et al., 2017).

#### **Results**

A total of 57 students responded to the survey resulting in a 16% response rate. Average age upon entering medical school was 24 years. The majority (82%) of the respondents were classified as non-traditional, with most (53.2%) taking 1-2 years before matriculating into medical school. Most non-traditional students reported working in a healthcare setting (23.3%), followed by attending graduate school (14.6%). Non-traditional students identified age, previous work experience, and life experiences as having a very strong impact on their clinical rotation experience. These students also cited preparedness as the most important clinical attribute seen in high-performing peers.

#### **Conclusions**

These findings support the earlier hypothesis that non-traditional students gain valuable experience from their time between obtaining their undergraduate degree and starting medical. We are currently expanding our survey to three other institutions in order to increase our sample size. This will further help to understand the role previous life experience plays in students' clinical experience.

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**Poster 63** - "...and how does that make you feel?" Incorporating psychotherapy education into the medical student Psychiatry clerkship curriculum in order to increase interest in Psychiatry as a career.

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**Objective or purpose of innovation**

It is well established that psychiatry is a significantly underserved field. Studies have indicated several factors that correlate with increased recruitment of medical students into psychiatry, including lower stigma associated with psychiatry, perceived reputation of the psychiatry department, appeal of work life balance and the evolving nature of psychiatry. The aforementioned factors are largely non-modifiable in the short term, which make it difficult to find interventions that will lead to desirable outcomes. A survey of applications to Johns Hopkins Residency Program demonstrated that an important factor in choosing a program was exposure to different therapy modalities. Based on this study, our clerkship will add additional psychotherapy curriculum to the clerkship as a tangible way to increase interest in psychiatry as a career.

**Instructional methods and approach**

We are in the process of developing an active learning curriculum teaching the most common psychotherapeutic approaches to third year medical students during their psychiatry rotation. As pre-work, they will be asked to read about and watch video examples of different psychotherapeutic techniques. During class time, a psychiatry resident or faculty member will present several different patient cases. The students and the facilitators will engage in discussion of which psychotherapeutic technique would be recommended and discuss the process of what the therapy might entail. Pre and post-surveys will be conducted to assess how exposure to therapy during their rotation influenced their interest in pursuing Psychiatry.

**Educational Outcomes**

Our expectation following implementation of this intervention is that medical students will show an increased interest in pursuing Psychiatry as a result of exposure to and application of therapy modalities.

**Strength of Innovation**

It is imperative that we recruit excellent candidates into psychiatry as a field. Our hope is that this tangible intervention will prove to be a valuable tool to increase interest in Psychiatry at an impactful phase during the early career of a physician.

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**Poster 64** - No Fear Physical Exam Review: A Near-Peer Educator Pilot Project

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**Objective or purpose of innovation**

Third year medical students (MS3) near completion of clerkships reported to peers that they perceived a lacked confidence and proficiency in the physical exam despite their clinically integrated, competency-based clinical skills curriculum. The MS3 year is within the zone of proximal development, and as such is

a potential target for teaching, but senior team members may not have time to hone students' skills, and students may be unwilling to admit their deficiencies. Consequently, we developed a voluntary physical exam review taught by MS4 students prior to the MS3 milestone exam. In our institution and others<sup>1</sup>, near peer educators have taught physical exam labs during pre-clerkship years. Students are more comfortable baring their lack of proficiency and confidence in clinical skills to other medical students as opposed to residents or attendings<sup>1,2</sup>. Utilizing MS4 students may be a novel way to help MS3's gain proficiency in the bedside physical exam while reinforcing it for MS4's.

#### **Instructional methods and approach**

MS4's were trained by attendings with strong teaching backgrounds in the comprehensive, systems-based physical exam and in giving feedback before the session. MS3 students were offered a 2-hour physical exam review. Required resources included: volunteer MS4's, a faculty supervisor, and classroom space.

#### **Educational Outcomes**

Qualitative surveys administered upon completion of the review evaluate student comfort in performing the physical exam and facilitator assessment of improvement in technique with a five-point Likert scale. Variations in student performance on the milestone exam are analyzed and compared to the previous year and students who opted not to participate in the review.

#### **Strength of Innovation**

A review of the literature failed to reveal existing near-peer teaching programs after the pre-clerkship years. The physical exam is used daily during clerkships, and it may be that students become aware of deficiencies during that time. Future projects include a mock OSCE for the MS3 with MS4 feedback and demonstration.

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#### **Poster 65 - Student Simulation Observer Form: A Novel Tool to Facilitate Debriefing**

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#### **Objective or purpose of innovation**

While simulation at most programs is characterized by learners taking an active role within a simulation scenario, many programs utilize the observer role. It has been shown that learning outcomes and role satisfaction of observers is improved by the use of observer tools, however, few studies document the development or use of simulation-based observer tools.

#### **Instructional methods and approach**

A six-question Student Simulation Observer Form (SSOF) was created, focusing on teamwork and clinical management. This form was piloted with 18 fourth year emergency medicine clerkship students during 2 high-fidelity simulation sessions, over 2 clerkship blocks. Students were broken into groups of 3 or 4 and randomly selected to participate in one simulation case, while observing another. Cases included pneumothorax and CHF exacerbation. Student observers were provided the SSOP form. After each simulation, observers and simulation participants gathered for a faculty-moderated debriefing session, during which faculty members prompted the observers to answer SSOF questions.

#### **Educational Outcomes**

Of the 18 students, 77% had provided peer feedback for a prior simulation session, and 44% had used a standardized form to do so. Eighty-nine percent reported that filling out the SSOF helped to identify important case-related issues, 72% reported it helped them pay attention, while 33% found it distracting. Sixty-seven percent reported that providing peer feedback was a "positive" experience, while 33% found it "neutral". As a participant in a simulation, 28% felt nervous or worried of being judged by others, while 44% felt motivated to perform better. Overall, 94% felt that peer observation and receiving feedback was a "positive" experience, while 6% felt "indifferent." All participants felt that this exercise was an overall

positive experience and would participate again in both the participant and observer roles.

### **Strength of Innovation**

SSOF can be incorporated into a simulation curriculum to engage observers and can be also beneficial to simulation participants by providing peer feedback.

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## **Poster 66 - Assessing the Assessors: Evaluating Narrative Quality from Third Year Neurology Clerkship In-Training Evaluation Reports (ITER)**

M. Kelly, C. Mooney, R. Stone  
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### **Objective or purpose of innovation**

Narrative evaluation of medical students is gaining popularity as a component to performance assessment. Our previous work suggests that qualitative, narrative evaluations of students provide equal or better reliability with regards to clerkship grading<sup>1</sup>. A major barrier to the utility of narrative evaluation is concern regarding quality, and few studies have looked at assessing and improving the narrative quality<sup>1</sup>. Our aim is to develop a tool to evaluate quality of narrative comments in ITERs, and utilize this tool to improve quality.

### **Instructional methods and approach**

To assess the quality of narrative comments in ITERs, the Narrative Evaluation Quality Instrument (NEQI) was created. Approximately 120 narrative evaluations will be collected from 20 students from the 2016-2017 Neurology Clerkship. Five members of the study team will quantitatively score the narratives using the NEQI, and intra-class correlation coefficients (ICC) will be calculated to assess inter-rater reliability. Correlations between NEQI scores and study variables (e.g time to completion, word count) will be analyzed. Narrative feedback reports for the evaluators will be created and analyzed qualitatively for themes pertaining to how to improve narrative quality.

### **Educational Outcomes**

We hypothesize that the NEQI will represent a tool with good to excellent statistical reliability (ICC > 0.60), and that we will discover important themes for improving overall narrative quality. These themes and the NEQI could then be disseminated nationally and used to provide feedback to evaluators to improve ITER narrative quality. Ultimately, we feel that assessing student clerkship performance using high-quality narrative assessment will be more useful than quantitative reports based on numeric scales.

### **Strength of Innovation**

Narrative evaluation has promising application in medical trainee assessment, however, remains limited by lack of research assessing and improving narrative quality. Our work looks to formally validate a tool and discover themes for improving quality that could be easily disseminated and could significantly help move quality assessment forward.

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## **Poster 67** - A Novel Approach to Outpatient Student Experiences in Neurology

C. Cioroiu  
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### **Objective or purpose of innovation**

It has been traditionally difficult for students rotating in a neurology clerkship to independently assess and evaluate a neurological patient in the outpatient setting under attending supervision. This is in contrast to the inpatient setting, where students often are able to conduct complete interviews and exams on their own. Typically, students in the outpatient setting participate in patient care in either a primarily “shadowing” role, or by doing selected parts of the history or exam under supervision. This is often due to various scheduling and time constraints put on faculty and residents. This can lead to less satisfying educational experiences given the inability of students to initiate and complete a full patient encounter and develop a differential diagnosis independently.

### **Instructional methods and approach**

To develop a new outpatient educational model in which students can independently assess and examine patients, after which they can review their patient encounter with a faculty member. The model discussed here describes a manner in which attending schedules can be created to accommodate two simultaneous new patients - one seen by the attending, and the other seen by the student(s) independently. Given this “double booked” slot, the following patient slot is left empty to allow time for review of the case with the students and examination/assessment of the patient by the attending.

### **Educational Outcomes**

Improvement in students' comfort with independent assessment of patients in the neurology outpatient setting. This is determined via pre and post- innovation surveys.

### **Strength of Innovation**

This innovation can be generalized to most faculty members seeing patients frequently in the outpatient setting, in that schedules can still be filled to include the standard number of patients in a session. The limitations of this include the fact that it does not account for patient “no-shows” and is often not feasible for faculty who see patients on an abbreviated schedule.

### **References**

none

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## **Poster 68** - The Impact of Digital Spaced-Learning Media in the Study of Thoracic Gross Anatomy by First Year Medical Students

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Frank H. Netter MD School of Medicine at Quinnipiac University

### **Objective or purpose of innovation**

Emergency medicine residents and physicians are required to learn a large body of medical information and clinical skills that they will then need to actively recall and implement in high stakes patient encounters that are often stressful. One parallel can be found in the gross anatomy practical exam, where students experience 40 stations each with a single 90-second opportunity to interact with a human donor or radiological image and successfully answer a case-based exam question. Educational scholarship has demonstrated that incorporating active retrieval and spaced repetition into learning increases recall and retention of knowledge.<sup>1,2</sup> Yet few data exist on the impact of spaced retrieval on preparing for gross anatomy practical exams.

### **Instructional methods and approach**

Our study investigated the effect of providing pre-assembled, multimedia ANKI decks to n = 180 first year medical students (classes of 2019 & 2020; n = 90 each) as a supplement to their study of thoracic anatomy. ANKI is a digital flashcard app that operates using active retrieval and spaced repetition algorithms.<sup>3</sup>

4-point Likert posttest surveys were used to evaluate student usage patterns as well as impact on

confidence, stress, and anxiety while preparing for a 40-station thoracic anatomy practical exam. Data on digital platform, type of cards most and least helpful, curriculum integration, and performance on the practical exam were also obtained.

#### **Educational Outcomes**

In brief, the ANKI digital spaced-learning media provided increased confidence in the subject matter and decreased stress and anxiety felt going into a practical exam by 52 - 74% of first year medical student users. Labelling, cadaver, and integrated physiology or radiology cards were most valued.

#### **Strength of Innovation**

This project integrated what is known about the neurobiology of learning with educational materials in the context of a practical exam and represents an additional means to help learners better retain and apply knowledge in time-limited, stressful clinical settings.

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### **Poster 69 - Anatomage: Incorporating Interactive Virtual 3D Simulation Technology in an Embryology Curriculum**

N. Cormier, S. Tse, A. Gilroy  
University of Massachusetts Medical School

#### **Objective or purpose of innovation**

Embryology is the study of molecular, cellular, and structural processes leading to the development of an organism. It helps explain how birth defects occur and shapes healthcare strategies for improved reproductive outcomes. Embryology is a key component of medical education, as 5% of patients are diagnosed with recognizable birth defects. Medical students use embryology as a logical framework for understanding the body's normal organization and pathology.

The majority (64%) of U.S. medical schools integrate embryology into gross anatomy, while 19% run a standalone course. From the 1930s to the 1990s, gross anatomy instruction transitioned from passive lecture lacking clinical context to integration of principles and clinical application. Curricular reform in the 2000s pushed for use of technological advances in interactive settings. Embryology coursework has not kept pace, instead retaining passive lecture formats and textbooks as the mainstay.

Our innovative program harnesses Anatomage technology to re-envision embryology instruction.

#### **Instructional methods and approach**

The Anatomage table is an interactive simulation technology that renders radiological scans in virtual 3D. Its image library contains MRI's of high-resolution in-vivo human embryos (32-56 days) and a 2nd trimester fetus. Using these images, we created interactive modules designed to be delivered in parallel with traditional lectures. PDF versions of modules draw on 3D MRIs generated with Anatomage software to trace the development of key anatomic structures.

#### **Educational Outcomes**

Students will:

- 1) Develop visual/temporal frameworks for understanding embryology
- 2) Understand abnormal development as the basis of congenital pathology

#### **Strength of Innovation**

Although the PDF format broadens accessibility of these datasets to programs that lack an Anatomage table or to student populations that lack table training, they do not make full use of the system's interactive touchscreen capabilities. Once improved with peer feedback, pilot modules will serve as foundations for small-group Anatomage sessions where students can manipulate embryo scans directly, and for research assessing the innovation's impact.

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**Poster 70 - Efficacy of a peer-led, kinesthetic approach to learning the anatomy of forearm musculature**

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**Objective or purpose of innovation**

Studies have proposed that medical students often prefer multi-modal methods of learning (Pettersson et al. , 2009). Non-traditional methods such as peer-led or hands-on learning have been suggested to improve students' academic performance (McCulloch et al. , 2010; Nnodim, 1997). We examined whether a peer-led session wherein students engaged in the kinesthetic creation of a posterboard forearm model could improve student test performance. The goal of this session was to improve students' overall knowledge while also encouraging adaptive learning.

**Instructional methods and approach**

A forearm muscle modeling workshop was led by four second year medical students (M2s) for seventy-three first year medical students (M1s). Each M2 led a group of fifteen to twenty M1s. At the start of the session, a quiz assessing students' knowledge of the material was administered. Next, each M1 received posterboards, stencils of the forearm muscles, and materials to construct their models. Participants were instructed to discuss the function and anatomy with peers. A post-workshop quiz evaluating changes in student knowledge was then administered. After the workshop, students took their models home.

**Educational Outcomes**

Response rate for the post-workshop quiz was low, making comparison of pre and post workshop quiz scores difficult. When comparisons were made, an insignificant increase in score was demonstrated. Using the gross anatomy course examination data as a post-assessment, a one-way ANOVA analysis will be performed on anatomy exam scores of the corresponding unit from workshop participants versus those of non-participants. Specific results of statistical tests will be reported prior to the meeting date.

**Strength of Innovation**

Alternative learning approaches provide benefits to both students and instructors: helping to engage those with various learning styles to think elastically about course material and hone critical thinking skills that will be valuable throughout their careers. Our study aimed to determine the efficacy of a non-traditional, kinesthetic approach to the anatomy of forearm musculature.

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**Poster 71 - A method for facilitating reflective discussion among medical students during the human anatomy lab**

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<sup>1</sup>University of Vermont Larner College of Medicine, <sup>2</sup>University of Michigan, Ann Arbor

### **Background or theoretic framework and importance to the field**

Human anatomy courses present medical students with a singular combination of psychological and academic challenges. Anatomy typically includes cadaver dissection, provoking complex emotional responses in students - while they are working intensely in small, task-focused teams. This study examined a curricular method carried out at the University of Vermont comprising three small-group sessions intended to promote reflection on three topics emerging during the anatomy lab: Emotional Responses to Cadaver Dissection; Effective Teams; and Death and Dying. Each session asked students to share important experiences related to lab.

### **Methods**

In the co-occurring course fostering professionalism and reflectivity, 120 students attended three sessions in small groups in which faculty preceptors facilitated semi-structured discussion. Session 1 encouraged sharing feelings about cadaver dissection; session 2 elicited strategies related to effective dissection-team functioning; session 3 explored students' experiences with loss. Students subsequently completed questionnaires including Likert questions and open-ended comments. Comments were subjected to thematic analysis, and a coding scheme categorized themes.

### **Results**

113 (94%) students responded. 84% felt the sessions prompted important discussions, and 88% felt that they facilitated a reflective experience. 83% indicated that these sessions were a useful adjunct to the lab. Thematic analysis of open-ended comments showed positive responses from 69% of students, with the most common theme (52%) articulating the benefit of talking with peers about difficult experiences.

### **Conclusions**

This curricular triad of important topics arising during cadaver dissection exploring dissection itself, teamwork, and death and dying is a useful adjunct to a traditional anatomy curriculum. It created unique, important discussions. Despite the emotionally charged nature of these conversations, students remained positive about this curriculum.

Previous literature notes curricula related to each of the topics presented here. The unique feature of this method involves their successive combination, allowing medical students to focus and develop reflective discussions around the anatomy lab.

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### **Poster 72 - Student Preparation of Virtual Autopsy Reports of Anatomical Donors dissected during the Gross Anatomy Course**

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### **Objective or purpose of innovation**

Integration of the medical curriculum has proved valuable over the past several decades (1). Our project integrates both Radiology and Pathology into the Gross Anatomy course culminating in the writing of a virtual autopsy report by student groups in consultation with clinical faculty. There are two groups of four students that do the complete dissection of one anatomical donor.

### **Instructional methods and approach**

These are the approaches used to forensically evaluate the donor:

- 1) The donors were CT scanned prior to the start of the course. The CT dataset of the relevant donor was provided to each group of students along with a report written by a Radiology resident.
- 2) A pathologist is consulted if students notice unusual structures while they are dissecting. If deemed to

be abnormal, photographs and biopsies are taken with the latter processed for microscopy and staining. Slides are evaluated by a pathologist who discusses the findings with the student group.

#### **Educational Outcomes**

At the conclusion of the course, each group of four students prepares a virtual autopsy report based on the radiological and pathological findings. The results are documented using relevant screen shots of the CT scan and photographs of the macroscopic and microscopic findings. Students attempt to determine the cause of death of the anatomical donor in consultation with clinicians from both Radiology and Pathology. This horizontal integration of the basic science curriculum exposes students to medical diagnosis early in medical school and provides closure for the Gross Anatomy experience.

#### **Strength of Innovation**

Student preparation of a virtual autopsy report of their anatomical donor could be adopted at all medical schools if departments are willing to provide faculty and financial support. In the future, we hope to involve other departments, such as Medicine, Surgery & Neurology, to give additional insight into determining a cause of death.

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### **Poster 73 -** Reinvigorating embryology in the medical school curriculum

R. Sheskier  
SUNY Downstate College of Medicine

#### **Objective or purpose of innovation**

Embryology is a vital tool in medicine and surgery for the understanding and management of many conditions in both pediatric and adult populations. However, it is a subject in the medical curriculum that is often overlooked by students and educators alike. This occurs due to embryology's believed "low-yield" status on standardized exams and perceived complexity of understanding and teaching of this subject. As a result, medical students are often displeased with their embryology curriculum and are not confident in learning and applying embryologic concepts (1). To overcome these hurdles surrounding embryology in the medical school curriculum, innovations in the current teaching of this subject must be undergone.

#### **Instructional methods and approach**

Instructional approach includes case based lectures on embryologic development of each organ system, a method that is already widely used and favored (2). Senior students will act as co-presenters with faculty to stress importance of development in clinical years. More thorough explanation of embryology will be provided outside of formal lectures in the following materials:

- Text primer explaining the embryological processes to act as reference
- Access to and provision of appropriate visual aids
- Multiple choice questions to test understanding

#### **Educational Outcomes**

Educational outcomes include increased confidence in applying embryological concepts to examinations and clinical reasoning.

#### **Strength of Innovation**

The proposed algorithm for embryology in the medical school curriculum is easily reproducible with free dissemination of the developed supplemental materials. Improvements will be made following development of materials with subsequent student feedback. Lack of pre-clinical student interest in embryology may pose a barrier to efficacy of the redevelopment. Inclusion of senior students in the embryology lectures has the potential to overcome this challenge. Beyond improved educational outcomes, this redesigned approach will heighten students' appreciation for embryology as it pertains to health and disease in the clinical setting and increase overall satisfaction with the medical school curriculum.

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Med J. 59 (4): 188-192.

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**Poster 74 - Effectiveness of Scaffolding Tools to Achieve Cognitive Integration in a Pre-clerkship Radiology Curriculum**

W. Ji, B. Adelson, S. Eisner  
SUNY Downstate College of Medicine

**Objective or purpose of innovation**

Achieving conceptual coherence, the cognitive integration of basic and clinical sciences in a learning modality, promotes understanding of difficult foundational concepts. Multiple studies in artificial experimental settings demonstrated that making purposeful explicit connections between the basic and clinical sciences improves conceptual coherence for clinical reasoning. SUNY Downstate is performing the first studies on the logistics and impact of cognitive integration within an ongoing curriculum. Pre-clerkship Radiology Rotating Exhibits (RRE) links together radiology, anatomy and pathophysiology in case and team-based modalities in an explicit developmental manner. Nevertheless, we found that students struggle to make these purposeful connections. We hypothesize that more scaffolding via an interactive atlas and near-peer teaching session on applying a template approach to radiologic interpretation would help students improve cognitive integration.

**Instructional methods and approach**

Pre-RRE, post-RRE and end of unit assessments of integrated knowledge are implemented. Performance on relevant assessment questions will be compared to previous classes which did not utilize the additional resources. Evaluation of degree of use and impact of each resource is performed.

**Educational Outcomes**

Assessments of integrated knowledge are analyzed for 200 students. We hypothesize there will be greater utility for RRE in students who used one or both scaffolding resources. We predict that students who exclusively attend the near-peer lecture to learn a strategy template will perform better than those who solely use the atlas. Final analyses will be presented in the presentation.

**Strength of Innovation**

Many schools employ integrated sessions focusing on making purposeful connections between basic and clinical knowledge. Faculty question whether materials can be side by side or explicitly integrated, and whether either are enough to impact student clinical reasoning skills. Our study will contribute to appraising what types of resources are helpful in making the most of these teaching modalities and in what sequence they should be offered in an ongoing medical school curriculum.

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**Poster 75 - What are student perceptions about the effectiveness of instructional methods that utilize radiology content in preclinical anatomy education**

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**Background or theoretic framework and importance to the field**

The anatomy curriculum has seen the greatest integration of radiology, however there is little consensus on how this should be done to maximize student benefit. Benninger, Matsler, & Delamarter (2014) studied

the feasibility and effectiveness of full-body dissection accompanied by radiological images of the corresponding cadaver and the availability of ultrasound for students to obtain their own images. They argue that incorporating radiology into dissection lab allows students to see normal and pathological anatomical patterns both physically and radiologically, each modality contributing to the understanding of the other. Student and visiting faculty evaluations praised the successful integration. Other universities that have joined imaging and first year anatomy dissection also received positive feedback from their students who also request more access to imaging (Turmezei et al., 2009). At the University of Chicago Hospitals, the only topic varied specialists could universally agree on as important “core” anatomy content was anatomy presented as radiological images (Orsbon, Kaiser, Ross, 2014). There is overwhelming support in the anatomy education literature for assimilation of radiology into the pre-clinical medical curriculum, however, data on the effective ways of executing the merger is lacking.

### **Methods**

Focus groups with students from the class of 2019 and 2020 (maximum of 8 students per group) will be conducted. There is no additional inclusion or exclusion criteria for student participation. Students will sign a consent and confidentiality agreement. Participants will be recognized with an alphabetical identifier. The identifiers will be destroyed within 1 year of completion of the project. All discussions in the focus group will be audio-recorded and transcribed. Transcripts will be analyzed to identify themes regarding radiological anatomy instruction. Data will be saved on a password-protected laptop.

### **Results**

In process

### **Conclusions**

NA

### **References**

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## **Poster 76 -** Incorporation of a radiology-anatomy laboratory into an evolving gross anatomy curriculum

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New York University School of Medicine

### **Objective or purpose of innovation**

There is a new paradigm in gross anatomy education among a small but growing number of U.S. medical schools. In many areas, procurement of cadavers for gross anatomy coursework has become a significant challenge. Moving away from the traditional cadaveric experience, anatomy education has moved into the digital age and has embraced advanced imaging as a valuable complementary educational tool.

### **Instructional methods and approach**

At our institution, the traditional gross anatomy curriculum maintains small-group cadaveric dissection, while working to include a greater proportion of labelled prosection and several new radiology-anatomy laboratory exercises (introductory, head/neck, cardiothoracic, abdominal, pelvic, and musculoskeletal labs).

In each laboratory, small student groups utilize a laboratory manual comprised of a series of clinical vignettes. As students work through these case studies, they access anonymized patients on a teaching-environment PACS workstation, manipulating images to identify normal anatomy. The case study then delves into a pathologic condition, but abnormal imaging exams are used to illustrate normal anatomic relationships. Each clinical vignette contains specific anatomic structures to identify and questions to challenge students as they proceed.

Students are actively engaged as they access radiologic images on the workstation, and they become

familiar with frequently used imaging modalities early in their medical education, utilizing cross-sectional imaging in axial, coronal, and sagittal planes, as well as advanced 3D images (i.e. “all the bells and whistles”).

### **Educational Outcomes**

Each laboratory concludes with an image-based summary quiz to assess students' knowledge. Finally, a student survey will be administered to assess the effectiveness of the lab experience.

### **Strength of Innovation**

This radiology-anatomy laboratory is easily transferable to other institutions and will grow as technology continues to evolve. Future developments include more interactive, augmented and virtual reality software that allows students to select, manipulate, and traverse specific organs and vessels as they learn gross anatomy.

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## **Poster 77** - Effectiveness of Radiology Educational Resources in a First Year Gross Anatomy Course

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University of Buffalo Jacobs School of Medicine and Biomedical Sciences

### **Background or theoretic framework and importance to the field**

The purpose of this study was to assess medical student perception and usage of various radiology educational resources available during the first-year gross anatomy course.

### **Methods**

Several distinct resource options were available to students to use in preparation for each of the gross anatomy unit exams. These resources consisted of case/pathology-based lectures, strict anatomical relationship and imaging lectures, self-guided learning modules (MedEd Portal), and radiology imaging identification questions. Survey data on student perception of the effectiveness of each educational resource as well as the student's educational level and previous experience with radiology imaging prior to medical school were collected.

### **Results**

Anonymous surveys were administered after each of the major unit exams (Back/Thorax, Abdomen/Pelvis, Head/Neck, and Extremities/Final Exam). A total of 98 surveys were completed. Overall, an average of 95% of respondents somewhat or strongly agreed that the strict anatomical relationship lectures helped prepare for the radiology questions on the exams. In contrast, 62% of students either somewhat or strongly disagreed that case/pathology-based lectures helped prepare for the exams while 17% of students responded they somewhat or strongly agreed this resources helped. Furthermore, 44% of students somewhat or strongly agreed that the MedEd Portal Radiology Modules helped in preparing for the radiology component of the exams, with 33% choosing not to utilize this resource. Finally, 91% of students somewhat or strongly agree that radiology identification questions helped prepare for the unit exams.

### **Conclusions**

First year medical students taking the gross anatomy course preferred resources that focused strictly on anatomical relationships and their appearance on radiographic imaging over modalities that used pathology or case-studies. The limitations of the study included the number of survey responses as well as the study being limited to one iteration of gross anatomy at a single medical school.

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**Poster 78** - Cognitive Diagnostic assessment for improving instruction in biochemistry

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**Objective or purpose of innovation**

In undergraduate medical education (UME), course assessments usually provide only pass/fail scores. This approach provides instructors with insufficient diagnostic information to recognize students' strengths and weaknesses in their learning as well as to improve their teaching performance. This study aims to use cognitive diagnosis assessment (CDA) as a solution.

**Instructional methods and approach**

"Fueling the Body" is a course given during the first year of UME. It integrates how the body acquires essential nutrients (micro and macronutrients), the structures involved in processing of these nutrients for proper digestion and absorption, metabolic mechanisms that enable the cells to utilize these nutrients as well as diseases resulting from aberrations from these processes. Our teaching approach aims to connect the basic science to the clinical reasoning. Our tests, which are short essays questions, are tethered to a case vignette such that clinical reasoning and basic science knowledge are assessed together. For this study, we used exam responses of 200 students enrolled in the course. The exam includes 25 questions.

**Educational Outcomes**

Results showed a successful application of CDA to a biochemistry exam (maximum z-score of residual between the observed and predicted fisher-transformed correlation = 2.65). The exam measured four skills: understanding basic science concepts, tying together complex information, using basic science to solve problems, and using basic science in clinical reasoning. This application identified which skills each of the 25 items were assessing and in turn, the skill mastery profile for each student. We categorized students into 16 groups based on their skill profile for the instructor to have usable feedbacks.

**Strength of Innovation**

Obtaining good feedback for improving teaching and pedagogical approaches can prove to be a challenge. Use of the CDA becomes another approach that can be useful in providing medical educators with actionable feedback to use both for delivery of material as well as for crafting better assessment tests.

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**Poster 79** - Use of real patients and patient-simulation-based methodologies for teaching gastroenterology to pre-clinical medical students

J. DeSipio, J. Gaughan, S. Perlis, S. Phadtare  
Cooper Medical School of Rowan University

**Objective or purpose of innovation**

Students benefit from educational experiences that foster compassion, altruism, and respect for patients. We included real patients and patient-simulation-based methodologies to teach gastroenterology to the

second year medical students. Our goals were to (i) demonstrate bio-psychosocial aspect of clinical practice, (ii) demonstrate commonality of gastrointestinal ailments and (iii) help understand difficult concepts.

#### **Instructional methods and approach**

We invited six people with various GI ailments that the students saw everyday such as faculty and staff to participate in lectures and other sessions during the gastroenterology course. Aspects of their diseases correlated with difficult concepts. Prior interviews were conducted with patients to create 10-minute scripts to facilitate time efficient and focused discussions. Interviews highlighted their struggles and clinical aspects unique to respective diseases. This experience was concluded by a two-hour session that included presentation of non-infectious diarrhea cases and demonstration of how endoscopy/colonoscopy can be used for their diagnosis using simulation modalities including high fidelity mannequins. A follow-up real patient interview emphasized diagnostic difficulties of IBS. Students then formed groups of four. Each student in a group was given information about one infectious diarrhea disease. The students learned the information assigned to them, presented to their group and took a group quiz.

#### **Educational Outcomes**

These approaches added bio-psychosocial aspect to the curriculum, demonstrated commonality of GI elements and helped to understand some difficult concepts. Student participation was enthusiastic. Almost all quiz questions were correctly answered, which is remarkable given that they were exposed to these diseases for the first time. Their reception of involvement of patients was overwhelmingly positive. They described it as the most powerful aspect of the course.

#### **Strength of Innovation**

These approaches humanized medicine and made difficult concepts memorable and can be created for any pre-clinical course. The interactive session promoted cooperative learning and peer-teaching. We will test long-term retention of the learned concepts.

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### **Poster 80 - Applying the Educause Survey to Medical Students at the University of Vermont**

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#### **Background or theoretic framework and importance to the field**

Educational institutions experience challenges in providing technological services to students, including cost, support, and security. Further, students have strong preferences surrounding technology. Thus, schools must balance institutional requirements with student satisfaction. While the majority of research in this area has been conducted with undergraduate students(1), it is important to understand these dynamics in the context of medical education.

Critical technological components in medical education include personal, classroom, and clinical technologies, as well as learning management systems. Optimization of medical education can occur through understanding students' attitudes and habits toward these components.

#### **Methods**

Since 2004, The ECAR (EDUCAUSE Center for Analysis and Research) Student and Technology Research survey has measured undergraduates' attitudes toward and usage of educational technology. A small group of medical schools, including The Robert Larner, M.D. College of Medicine (LCOM), piloted an adapted instrument to determine student attitudes and the feasibility of its usage with medical students. Sixty-two medical students (71% clinical) reported in an online survey on of their use of and attitudes toward technology at LCOM.

#### **Results**

80% of students reported a good or excellent overall technology experience in the program. Further, the majority of students reported that handheld mobile devices were highly important for academic activities and success. Differences across the preclinical and clinical years were also reported surrounding the use



of smartphones and tablets. Finally, the majority of students report instructors adequately use technology to enhance learning, and that they most prefer to learn in an environment that has some or half online components.

### **Conclusions**

While limited conclusions can be drawn, findings suggested LCOM students' technological experiences were positive and well-supported institutionally. These findings are critical for institutional planning and quality assurance. Next steps include aggregating data with the other pilot institutions to compare and contrast findings, as well as to determine feasibility of this instrument.

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### **Poster - 81** Is there an advantage to providing learning resources in an interactive electronic format?

<sup>1</sup>F. Timothy, <sup>1</sup>J. Bai, <sup>2</sup>S. Iqbal, <sup>1</sup>S. Ahmad, <sup>1</sup>P. Richman

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#### **Background or theoretic framework and importance to the field**

Tablet-based learning resources have been incorporated in medical education in anatomic dissection, differential diagnosis and medical terminology (1,2,3,4). We created an interactive electronic resource (iBook) in pulmonary medicine for 1st year students, integrating basic and clinical material. We compared the iBook to other learning resources with respect to:

- o student preferences
- o effect on exam scores

#### **Methods**

In our first-year course "cardiovascular-pulmonary-renal (CPR)," students learn by lectures, small group sessions, faculty-written materials, textbooks and Step-1 study guides. In 2017 an iBook was created for only one segment of CPR (Pulmonary) by two instructors and three students, with multimedia and interactive features. Its utility was assessed by:

- o A survey: all 132 students rated which learning resources were "best" or "second-best" in 7 categories: understandable, focused, comprehensive, student-oriented, engaging, time-efficient, accessible
- o Focus group sessions
- o The change in pulmonary scores in the two years before/after introducing the iBook compared to changes in cardiology-renal scores (which had no iBook).

#### **Results**

The largest number of students rated Step-1 guides as the best or second-best resource; small-group discussions and lectures were rated 2nd and 3rd, across all above categories. Compared to other reading resources, more students rated the iBook best or second-best, across all categories (22.3 +/- 7.0 versus 17.4 +/-7.6 percent). The iBook was rated higher in four specific categories: student-oriented, focused, engaging, accessible. Text resources were preferred for comprehensiveness. In focus-groups, students commented on the iBook's digestible format, integration of physiology, pathology and pharmacology, interactive images and study questions. Mean pulmonary exam scores improved by 0.8%. The combined cardiology and renal exam scores improved by 0.2% (p=ns)

#### **Conclusions**

Students preferred Step-1 learning materials to faculty-provided ones. Students perceived advantages and disadvantages of the iBook relative to other reading materials. Its introduction did not significantly alter pulmonary exam scores. Limitations: small sample size (n=132); the iBook is new (first iteration)

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**Poster 82** - Do scholarly concentration programs offer content areas that match students research interests?

R. Wong, B. Bergen, T. Murray  
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#### **Background or theoretic framework and importance to the field**

Scholarly concentration (SC) programs in medical schools provide scholarship opportunities in areas of student interest. Most new medical schools have SC programs but there is little data on whether these programs' areas of concentration accurately reflected student interests.<sup>1,2</sup> Considerations in developing SCs include student needs/interests and the school's mission/values.<sup>3</sup> This study examined in which concentrations student scholarly projects at the Frank H. Netter MD School of Medicine fit to determine if the currently available concentrations best match student interests.

#### **Methods**

Utilizing a mixed methods approach, a list of available SCs with unique content at U.S. medical schools was generated. Three reviewers independently assigned current Netter student projects to concentrations on the list based on content extrapolated from the project title. Projects could be assigned to more than one concentration. A survey was then developed to gauge student interest in SCs currently not available at Netter that fit >5% of project titles.

#### **Results**

226 Netter student project titles were matched to 18 concentrations. 25.7% of projects did not match their chosen Netter concentration. 65.5% of projects matched to the basic, translational and clinical science SC. 77% of projects matched to multiple SCs. The top 3 SCs not offered at Netter that fit student projects were: quality improvement and patient safety (18.1%; 41/226), care for the underserved (15.9%; 36/226), and child and adolescent health (13.3%; 30/226).

#### **Conclusions**

Although projects fit multiple concentrations, projects were assigned to the basic and clinical research SC more often than to nontraditional areas such as the humanities. This work identifies potential new SCs based on student projects when considering SC changes. The student survey will further determine which SCs to consider for curricular revision. A study limitation is that project assignment to SCs was based on the title only. This may have resulted in project placement in the wrong SC.

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**Poster 83** - Impacting Our Health Professions Education Community through a Virtual Medical Education Journal Club

S. Herman, A. Fornari, K. Friedman, C. George  
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

#### **Objective or purpose of innovation**

To bridge institutional geographical barriers for a large health organization, enhance interdisciplinary and inter-professional discussion and collaboration, and provide opportunities for continuing medical education (CME) and faculty development, a monthly virtual synchronous medical education journal club was created for all health profession educators. This poster will discuss the creation, implementation, and assessment of this journal club since April 2015.

#### **Instructional methods and approach**

The medical education journal club meets once a month via GoToWebinar. A faculty member or leader is invited to select a medical education theme and discuss two research articles. The Assistant Vice President of Faculty Development facilitates the discussion, and a medical librarian discusses study limitations and bibliometrics (traditional & alternative). Formative data was collected from a survey distributed to all participants at the end of each session.

#### **Educational Outcomes**

There were a total of 343 interdisciplinary and interprofessional participants over the 20 sessions conducted between April 2015 and October 2017. The types of articles reviewed, spanned a range of medical education topics such as diversity, simulation, unprofessional behavior, feedback, and burnout. The survey respondents (n=155) self-reported that the program met its learning objectives. 55% of respondents intended to make changes in their clinical and/or educational environment as a result of the sessions. 98% of respondents reported that their overall knowledge/skill level changed positively.

#### **Strength of Innovation**

The positive data retrieved from the surveys as well as the steady number of participants are indicators of success. The professional development activity provides a valuable opportunity to address current themes relevant to continuing professional development of all health profession educators. This educational opportunity advances a culture of clinician-as-educator in a large academic health organization. Our future efforts need to focus on increasing post session survey responses from participants and using social media to promote this innovation post event.

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#### **Poster 84 - Assessing the Impact of Gender and Years of Experience on Multiple Mini-Interview Scores at the University of Vermont's Larner College of Medicine**

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#### **Background or theoretic framework and importance to the field**

UVM Larner College of Medicine (LCOM) implemented the Multiple Mini-Interview (MMI), structuring the circuit to assess AAMC Core Personal Competencies (1). Previous studies demonstrated that age influences MMI scores (2), and that females receive higher MMI scores (2,3). We hypothesized additional years since undergraduate degree attainment (YSUD; proxy for life experience) was associated with higher MMI scores, and investigated gender differences in this association.

#### **Methods**

1795 LCOM applicants (52% female) received MMI scores. Multivariate linear regression examined whether gender and YSUD predicted MMI scores. An ANOVA investigated the associations between YSUD (quartiles) and MMI score. An independent-samples t-test examined gender differences in scores.

#### **Results**

A regression model ( $R^2 = .031$ ) demonstrated female gender ( $\beta = .298$ ,  $p < .001$ ) and YSUD ( $\beta = .032$ ,  $p < .001$ ) were associated with higher scores, though the interaction was not significant ( $p = 0.44$ ). ANOVA

results indicated an effect of YSUD on score ( $F [3, 1791] = 6.220, p < .001$ ). Post-hoc comparisons indicated differences between  $\leq 1$  year and  $\geq 3$  years YSUD ( $p < .001$ ). This overall pattern was not found for males ( $F[3, 846] = 2.256, p = .08$ ), but was for females ( $F[3,934] = 3.731, p = .01$ ), with the same post-hoc findings ( $p < .01$ ). The t-test indicated females had higher average MMI scores ( $M = 6.449$ ) than males ( $M = 6.155; t = -6.567, p < .001$ )

### **Conclusions**

Our findings replicated previous research with females outperforming males on the MMI. Additionally, YSUD impacted MMI scores, particularly in females. This research extends previous work to the US. One limitation is YSUD as a proxy for experience; it does not measure actual experiences or how these impact the applicant. Current findings inform quality assurance and validity of the admissions process. Future research should explore potential explanations for gender differences and life experience and how these associations might shape admissions practices.

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### **Poster 85 - Financial Education among Medical Students: An Evaluation of Financial Preparedness Using a California Paradigm**

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#### **Background or theoretic framework and importance to the field**

Medical education is associated with significant debt burden. The goal of this study was to explore the financial preparedness of trainee medical professionals by examining medical students in California as a paradigm.

#### **Methods**

A cross-sectional study was designed to assess medical student financial preparedness using a 29-item electronic questionnaire administered between November 2010 and February 2011. The survey was sent to MD and MD/PhD students at participating allopathic California medical schools.

#### **Results**

Among the participating schools, the response rate was 422 of 2026 students (20.8%). 140 participants (33.8%) reported receiving some form of financial education during undergraduate college, and 113 (27.3%) during medical school. 243 students (56.8%) first obtained financial information from a family member, 12 (2.9%) from friends, 35 (8.5%) from a financial advisor, 72 (17.4%) on their own, and 14 (3.4%) responded "other;" 46 students (11.1%) reported having no financial education. 253 participants (61.1%) responded that undergraduate college is the best time to introduce financial education, while 112 (27.1%) indicated that medical school is the most appropriate time. Projected student estimates of total educational debt upon medical school graduation varied, with \$200,000-\$249,000 being the most common range (107 students, 26%). Of all survey respondents, 312 (75.9%) responded that they felt they were in control of their finances.

#### **Conclusions**

Most medical students do not receive adequate financial education. Given the large sums of projected debt accrued during undergraduate and medical school, most medical students felt that financial education should be introduced early in their curriculum, optimally before medical school.

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