Keck School of Medicine of USC

# Innovations in Medical Education

## Transforming Health Professions Education through Innovation


Friday and Saturday, February 22 and 23, 2019

**Hilton San Gabriel**
225 West Valley Boulevard
San Gabriel, California, CA 91776

Presented by: Department of Medical Education
and USC Office of Continuing Medical Education

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# Innovations in Medical Education 2019 Conference Schedule
# Friday-Saturday, February 22-23, 2019

| FRIDAY, FEBRUARY 22, 2019 | |
|---|---|
| 8:30 am - 9 am | **Registration and Continental Breakfast (Pre-Conference Session only)** – *Foyer* |
| 9 am - 11:30 am | **PRE-CONFERENCE WORKSHOP (Fee: $50)**<br>  <br>**Enhancing Your Learners' Patient Encounter Skills in Preparation for Clinical Skills Examinations**<br>**Win May, MD, PhD, FRCP; Kathy Herzberger, BSN, MS; Alan Liu, MD**<br>*Keck School of Medicine of USC; Loma Linda School of Medicine; Keck School of Medicine of USC*<br>Physicians are expected to provide holistic and compassionate patient care through gathering and synthesizing information during the patient encounter, which will allow them to define the patient's clinical problem and manage the patient's care. Learners are sometimes in need of enhancing these skills. Join us for an interactive workshop, where you will be able to specify the learner's problem area through video review, practice some interventions and discuss what interventions could work in your home programs and institutions.<br>*San Francisco Conference Room* |
| 10:15 am - 11:30 am | **Registration and Lunch** – *Foyer* |
| 11:30 am - 11:45 am | **WELCOME**<br>*Conference Chair: Julie G. Nyquist, PhD; Conference Co-Chair: Cha-Chi Fung, PhD* |
| 11:45 am - 12:45 pm |  <br>**IME 2019 KEYNOTE ADDRESS**<br>**Looking Forward: An Educator's Guide to Assessment**<br>**PETER J. KATSUFRAKIS, MD, MBA**<br>*President and CEO, National Board of Medical Examiners (NBME)*<br>Dr. Katsufrakis is nationally recognized in the medical education and assessment community, both for his work at the NBME and in past roles advancing professionalism, HIV education, clinical training, and medical education administration. Prior to joining the NBME, Dr. Katsufrakis' positions included associate dean for student affairs and associate professor of clinical family medicine at the Keck School of Medicine of USC, where he received teaching and outstanding service awards for his work.<br>*Ballroom B2-C* |
| 12:45 pm - 1 pm | **Break** |

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|---|---|---|---|---|
| **1 pm - 2:30 pm** | *Ballroom B2-C*<br>**Presentations of Innovations: Potpourri**<br>**(NO CME FOR THIS SESSION)**<br>*Moderator: Maureen Strohm, MD*<br>1. Use of Machine Learning to Evaluate Robotic Surgical Performance and Predict Patient Outcomes. *Chen, Jian; Hung, Andrew.*<br>2. Expanding Awareness in Underserved Youth about the Diversity of Healthcare Careers. *Castillo, Erick.*<br>3. Inter-Professional OSCE Simulation Collaboration to Teach Obstetrics to Second Year Medical Students. *Ogunyemi, Dotun; Haltgin, Chris; Ferrari, Thomas.*<br>4. Escaping the Untoward Effects of the ESCAPE Trial: A Multi-Disciplinary Hemodynamic Curriculum. *McCauley, Brian; Kilic, Sena; Sharma, Esseim; Chu, Antony.* | *Santa Barbara Conference Room*<br>**MedEd Certificate Workshop: NBME Item Writing Made Easy**<br>*Cha-Chi Fung, PhD*<br>This hands-on workshop will use clinical vignettes and practical examples to induce participants' deeper understanding of the construction of good exam item that adheres to the standards established by the National Board of Medical Examiners (NBME). | *San Francisco Conference Room*<br>**Conference Workshop: Why Won't You Take My Good Advice? Teaching Motivational Interviewing and Empathic Communication**<br>*Jeffrey Ring, PhD; Kenneth Saffier, MD*<br>This workshop will provide participants with a deeper understanding of Motivational Interviewing and the Readiness to Change Model. | *San Diego Conference Room*<br>**Conference Workshop: The Who, Why, and How of Video-Based Education on a Shoe String Budget**<br>*Roy Phitayakorn, MD, MHPE; Gustaf Axelsson, MD; Michael Healy, EdD; Traci Wolbrink, MD, MPH*<br>This workshop will give its learners an opportunity to learn more about the need for video-based medical education and how to select the right format for a video. |
| **2:30 pm - 2:45 pm** | **Break** | | | |
| **2:45 pm - 4:15 pm** | *Ballroom B2-C*<br>**Presentations of Innovations: Undergraduate Health Professions Education**<br>**(NO CME FOR THIS SESSION)**<br>*Moderator: Jeffrey Ring, PhD*<br>1. The Keck Anatomy Mentorship Program: A Near-Peer Educational Experience. *Pott, Emily; Kazerouni, Kayvan; Jalali, Omid; Roy, Donovan; Vo, Anne.*<br>2. The Musculoskeletal (MSK) Physical Exam: Improving Learner Confidence in an Essential Clinical Skill. *Yu, Jaime; Guo, Qi; Hodgson, Carol S.*<br>3. Incorporating a Grading Rubric to Evaluate an Evidence Based Medicine Assignment. *Wald, David A.; Pierce, Jenny; Tagge, Natalie; Fane, Kathleen; Barrett, Jeffrey; Roepke, Clare.*<br>4. Evidence-Based Medical Education through an Integrative and Longitudinal Pharmacotherapy Curriculum. *Mozeika, Alexander M.; Asri, Rijul; Barinsky, Gregory; Cennimo, David; Chen, Sophia; Lamba, Sangeeta.*<br>5. Exploring Clerkship Students' Learning Styles to Aid in Design of a Pediatric Discharge Curriculum. *Molas-Torreblanca, Kira; Maniscalco, Jennifer.* | *Santa Barbara Conference Room*<br>**MedEd Certificate Workshop: Exploring How Our Environments Can Promote Resilience and Flourishing**<br>*Julie G. Nyquist, PhD; Lavjay Butani, MD, MACM*<br>Participants will explore the ways our work environments (office, classroom or clinical) can help us build resilience and flourish. What is going right on our best days and what is missing on our toughest days. We will use the lens of PERMA (Positive emotions, Engagement, Relationships, Meaning and Achievement) to help us examine positive factors and barriers in our work environments. Each participant will complete a needs assessment and together we will begin the development of action plans. | *San Francisco Conference Room*<br>**Conference Workshop: Your Student Posted What on Twitter? Defining and Teaching eProfessionalism in the Digital Era**<br>*Mark Davis. PhD; Greg Harlan, MD, MPH; Sarah Mojarad, MS*<br>In this session, attendees will understand what eProfessionalism is and the current challenges to its effective implementation, improve their digital identities, and work through several, recent eProfessionalism real-world cases, e.g., Facebook, Twitter. | *San Diego Conference Room*<br>**Special Poster Session: Assessment of Learner Performance**<br>**(NO CME FOR THIS SESSION)**<br>*Moderator: Donna Elliott, MD, PhD*<br>This special poster session will feature no more than 15 posters selected to complement the keynote address. Each presenter will have the opportunity to provide a 2-minute description of their project. There will then be 60 minutes for participants to examine each poster and discuss the projects with the poster presenters. |

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| **4:15 pm - 4:30 pm** | **Snack** *(Foyer)* **and Poster Set-Up** |
| **4:30 pm - 6 pm** | **LARGE POSTER SESSION 1 AND FRIDAY AWARDS**<br>These two poster sessions organize posters by topics to facilitate attendees' journey throughout the room: cool ideas, exemplar curricula, works in progress, and completed studies. The topics are arranged alphabetically with the first half in the session on Friday and the second portion in the session during lunch on Saturday.<br>**(NO CME FOR THIS SESSION)**<br>*Ballroom A-B1* |

## SATURDAY, FEBRUARY 23, 2019

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| **7:30 am - 8 am** | **Registration and Continental Breakfast –** *Foyer* | | | |
| **8 am - 9:30 am** | *Ballroom C*<br>**Presentations of Innovations: Wellbeing, Leadership, Cultural Competence**<br>**(NO CME FOR THIS SESSION)**<br>*Moderator: Kenneth Saffier, MD*<br>1. Physician Executive Leadership: A Student-Run, Student-Driven Approach to Healthcare Leadership. *Ho, Michelle; Hugo, Audra; Gordon, Jonathan; Navitsky, Lauren.*<br>2. Creation of a Well-being Curriculum for Interprofessional Trainees at a Clinic for Homeless Veterans. *Moore, Elizabeth M.; Soh, Michael; Stuber, Margaret; Warde, Carole.*<br>3. Self-Forgiveness Meditation to Improve Wellness of OBGYN House-Staff. *Ogunyemi, Dotun; Mays, Clarissa; Ferarri, Thomas.*<br>4. Resident Wellness: How to Find Your Ikigai and Create a Positive Attitude. *Diez, Caroline; Nambudiri, Vinod.*<br>5. Bridge to Residency: A Pilot Fourth Year Flexible Elective. *Nyquist, Julie G.; Vo, Anne T.; Schreiber, Jacob S.; Teplitz, Pamela L., BA; Aung, Jeremy, BS (MS2)* | *Santa Barbara Conference Room*<br>**MedEd Certificate Workshop: Never Stop Learning: Fostering Adaptive Learning in Clinical Contexts**<br>*Ronan Hallowell, EdD; Jeff Riddell, MD; Daniel Novak, PhD*<br>Continuous learning is a crucial part of medical students' and physicians' development. However, few resources exist to structure continuous learning in clinical contexts. This workshop will provide participants with an opportunity to practice an evidence-based, metacognitive approach to learning that will enable their students to continue learning across the career-span. | *San Francisco Conference Room*<br>**Conference Workshop: Gaming for the Win in Medical Education**<br>*Allie Dakroub, MD; Diane Levine, MD; Amjad Kanj, MD; Jasleen Kaur, MD*<br>Our workshop focuses on the concept of gaming as a novel approach in medical education (for medical students and residents). We will introduce the concept of gaming (what makes a successful learning game, how to implement one, and how to facilitate an effective gaming learning climate) and discuss assessments. | *San Diego Conference Room*<br>**Curricular Exemplars**<br>*Moderator: Win May, MD, PhD, FRCP*<br>**Implementing a Spiritual Care Curriculum into a Pediatric Residency Program**<br>*Paige Stevens, MD; Travus White, MD*<br>**Innovations Beyond the Competencies: Career Planning, Business Management, and Leadership**<br>*David Ninan, DO; Malin Cannon, BA, C-TAGME*<br>**It Takes a Village: Empowering Parents, Partners and Friends to Prevent Medical Student Burnout**<br>*Eran Magen, PhD; Anne E. Weisman, PhD, MPH, LMT; Kim Pham, MD, MPH; Kira Zwygart, MD; Amelia Phillips, MPH, CPH.* |
| **9:30 am - 9:45 am** | **Break** | | | |
| **9:45 am - 11:15 a** | *Ballroom C*<br>**Presentations of Innovations: Instructional Methods**<br>**(NO CME FOR THIS SESSION)**<br>*Moderator: Dante Cerza, MD*<br>1. Barts X Medicine: Educating and Empowering Medical | *Santa Barbara Conference Room*<br>**MedEd Certificate Workshop: Promoting a Culture of Feedback and Coaching**<br>*Win May, MD, PhD, FRCP; Kira Molas-Torreblanca, DO, FAAP* | *San Francisco Conference Room*<br>**Conference Workshop: From Kahoot! to Food Wars: Game-Based Learning to Enhance Medical Education** | *San Diego Conference Room*<br>**Conference Workshop: Battling Bias: Understand How Implicit Bias Affects Us and How You Can Combat It** |

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| | Students by Introducing Them to Digital Health. *Earl, Thomas; Ahmed, Shafi; Kreindler, Jack; Virani, Vishaal.*<br>2. Implementing the Flipped Classroom into Graduate Medical Education: Feasibility and Effectiveness. *Blair, Rachel A.; Caton, Julia B.; Hamnvik, Ole-Petter R.*<br>3. Expansion of an Institutional E-Learning Initiative: Analyzing Medical Student Perceptions and Performance. *Shah, Ishan; Sampath, Maya; Stoneburner, Jacqueline; Schooner, Lauren; Tam, Courtney; Yoshida, Brandon; Chung, Brian; Vo, Anne.*<br>4. Educational Technology and the Flipped Classroom to Improve ECG Interpretation Training in Residents. *Heath, Timothy.*<br>5. Using Mobile Device Technology and Spaced Education Adaptive Algorithms to Teach ECG Interpretation. *McCauley, Brian; Sharma, Esseim; Chu, Antony.* | Feedback is effective and important for learning and performance. Coaching extends the feedback to include both the giving and receiving of feedback. Through the use of short didactic presentations, games, and role play, the workshop will introduce participants to various approaches for nurturing a growth mindset and promoting a culture of feedback and coaching. | *Tom Baudendistel, MD; Joan Lo, MD; Aubrey Ingraham, MD; Andrea Chai, MD*<br>In this hands-on workshop, faculty with experience incorporating GBL into Academic Half-Days will lead participants through a variety of games designed to transform their classrooms. Examples will include Food Wars to teach healthy nutrition, Minute to Win It and Family Feud as tools to build differential diagnoses, and Escape Room to enhance procedural simulation | *Jolene Collins, MD, MACM; Kristin Koehn, MD, MACM*<br>Through the use of fast paced activities this session will teach participants the science behind implicit bias and the role it plays in current society, the medical decision-making process, and patient health outcomes. We will explore our own bias and how it affects our work every day. At the end the session, you will learn techniques to teach and combat bias |
| **11:15 am - 11:30 am** | **Lunch** *(Foyer)* **and Poster Set-Up** | | | |
| **11:30 am - 1 pm** | **LARGE POSTER SESSION 2 AND SATURDAY AWARDS**<br>These two poster sessions organize posters by topics to facilitate attendees' journey throughout the room: cool ideas, exemplar curricula, works in progress, and completed studies. The topics are arranged alphabetically with the first half in the session on Friday and the second portion in the session during lunch on Saturday.<br>**(NO CME FOR THIS SESSION)**<br>*Ballroom A-B* | | | |
| **1 pm - 1:15 pm** | **Break** | | | |
| **1:15 pm - 2:45 pm** | *Ballroom C*<br>**Presentations of the Best of Cool Ideas: Potpourri**<br>**(NO CME FOR THIS SESSION)**<br>*Moderator: Julie Nyquist, PhD*<br>1. Pediatric Resident Curriculum on Addressing Parental Vaccine Hesitancy. *Chen, Hsuan-hsiu Annie; Pannaraj, Pia; Thompson, Michelle; Ben-Isaac, Eyal.*<br>2. A Child Poverty Curriculum through Digital Storytelling. *Shear, Marni; Lewinter, Katherine; Wu, Susan; Rao, Sheela; Thompson, Michelle; Christman, Grant.*<br>3. Utilizing Digital Nutrition Videos to Help Food Insecure Families Bridge the Gap from Farm to Table. *Stiers, Katharine Blair; Tester, June; Harlan, Gregory.*<br>4. Writing for Success – Writing to Publish: Interactive | *Santa Barbara Conference Room*<br>**MedEd Certificate Workshop: Seeing is Believing: Techniques for Designing Effective Data Dashboards**<br>*Anne Vo, PhD; Daniel Novak, PhD*<br>This hands-on workshop offers participants an opportunity to apply data visualization principles and techniques to drive decision-making within a simulated academic medical center. Activities will be integrated throughout the session to build participants' analytic tool kit. Practice data will | *San Francisco Conference Room*<br>**Conference Workshop: Present Like a Boss: How to Deliver Better Didactics**<br>*Albert Kim, MD, MACM; Joan Noelker, MD, MACM*<br>Learn how to effectively present your message and actively engage your learner through preparation, storytelling, and slide design. Bring your own computers and presentations to receive feedback from the group. | *San Diego Conference Room*<br>**Conference Workshop: Developing Transparent Thinking Approach (TTA) - Based Medical Enhanced Ebooks (MEEB's)**<br>*Mohammad Aliedeh, PhD; Hashem Aliedeh*<br>Transparent Thinking Approach (TTA) is a newly developed value-engrained and thinking- based educational reform approach. In this TTA workshop session, the real "fruits" of this new approach will be "tasted" by "feeling" the innovative |

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| | Workshop for Health Professions Education Faculty. *Birkman, Clair; Hodgson Birkman, Carol.*<br>5. Loving and Old Age: The Use of Documentary Film to Teach Elder Safety. *Wright, Erika; Harlan, Greg; Nyquist, Julie; Capron, Alex; Schoen, Julie; Schaff, Pamela.* | be provided. Participants should be prepared to leverage their design thinking skills and engage their imagination during this gamified experience. | | TTA-created harmony between depth, meaningfulness, connectedness, and simplicity, which is reflected in the practical application of TTA concepts, tools, and perspectives. |
| **2:45 pm - 3 pm** | **Break** | | | |
| **3 pm - 4:30 pm** | *Ballroom C*<br>**Presentations of the Best of Cool Ideas: Graduate Health Professions Education**<br>**(NO CME FOR THIS SESSION)**<br>*Moderator: Julie Nyquist, PhD*<br>1. Educational Impact of a Podcast Covering Vitreoretinal Topics: One-Year Survey and Analytics Results. *Sridhar, Jayanth; Cai, Louis.*<br>2. #PHMFellowJC: Engaging Learners in a Discussion of Pediatric Articles through a Twitter Journal Club. *Chen, Jennifer K.; Kyler, Kathryn; Morrison, John; Tang-Girdwood, Sonya.*<br>3. Don't Worry, Be Appy! An Intervention to Increase Fellow's Ability to Treat Rare Critical Events. *Boucharel, Adria; Nyquist, Julie; Besinque, Kathleen; Yaster, Myron.*<br>4. Developing Resident Clinical Precepting Skills in the Emergency Department. *Murray, Collyn T; Kim, Albert J.*<br>5. Self-Directed Learning in the 21st Century: Using Online Educational Resources Thoughtfully. *Shamoon, Michael; Nyquist, Julie.* | *Santa Barbara Conference Room*<br>**MedEd Certificate Workshop: Teaching at the Bedside in the 21st Century**<br>*Cathy Jalali, PhD; Donna Elliott, MD, EdD*<br>This interactive workshop explores some of the commonly encountered barriers to bedside teaching. Through small group activities, participants will have opportunities to develop plans to improve the quality/quantity of bedside teaching at their home institutions and receive feedback on their plans. | *San Francisco Conference Room*<br>**Conference Workshop: Innovations in Teaching and Learning with Technology**<br>*Maria Maldonado, MPAP, MPH, PA-C; Alberto F. Vallejo, PhD*<br>This workshop is designed to help educators develop an approach to technology integration in the classroom. Presenters will share lessons and project ideas used in curricula. From "sage on the stage" to "guide on the side," participants will engage in hands-on activities, gain exposure to a set of cross-platform tools that will cater to the diversity and inclusion of all learning styles. To maximize their experience, bring mobile devices that you use regularly. |

Attendance at five **MedEd Certificate Workshops** (addressing key skills or timely topics) leads to a IME Conference MedEd Certificate from the Department of Medical Education, Keck School of Medicine of USC.

**ACCREDITATION STATEMENT:** The Keck School of Medicine of USC is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

**PRE-CONFERENCE WORKSHOP CREDIT DESIGNATION:** The Keck School of Medicine of the University of Southern California designates this live activity for a maximum of *2.5 AMA PRA Category 1 Credits™.* Physicians should claim only the credits commensurate with the extent of their participation in the activity.

**2-DAY INNOVATIONS IN MEDICAL EDUCATION CONFERENCE CREDIT DESIGNATION:** The Keck School of Medicine of the University of Southern California designates this live activity for a maximum of *10.25 AMA PRA Category 1 Credits™.* Physicians should claim only the credits commensurate with the extent of their participation in the activity.

For more information, visit the Innovations in Medical Education Conference 2019 website at:
**https://sites.usc.edu/ime-conference-2019/**

# IME 2019 Keynote Address

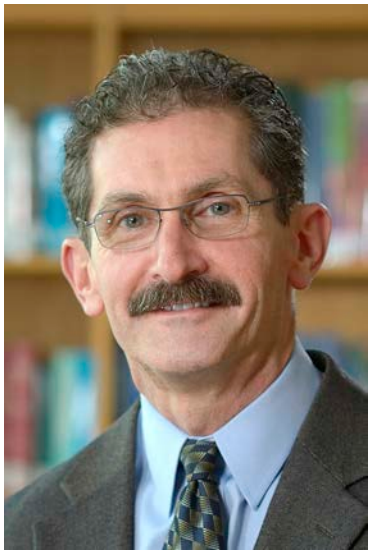
## Looking Forward:
## An Educator's Guide to Assessment

Friday, February 22, 2019 • 11:45 am – 12:45 pm

**Peter J. Katsufrakis, MD, MBA**

*President and CEO, National Board of Medical Examiners (NBME)*

Dr. Katsufrakis will review sound assessment practices. He will discuss different frameworks (Bloom's taxonomy, Miller's pyramid, RIME, etc.) and validity, as well as address considerations in developing a single assessment or a program of assessment.



**Peter J. Katsufrakis, MD** is president and CEO of the NBME. Dr. Katsufrakis previously served as senior vice president of Assessment Programs at the NBME and is recognized nationally in the medical education and assessment community, both for his work at the NBME and in past roles advancing professionalism, HIV education, clinical training, and medical education administration. Prior to joining the NBME, Dr. Katsufrakis's positions included associate dean for student affairs and associate professor of clinical family medicine at the Keck School of Medicine at the University of Southern California, where he received several teaching and outstanding service awards for his work. He has also served as a clinical associate professor of family and community medicine, at Sidney Kimmel Medical College at Thomas Jefferson University. Dr. Katsufrakis is licensed to practice medicine in Pennsylvania and is a diplomate of the American Board of Family Medicine. He is a member of the American Academy of Family Physicians and has served many organizations as a member, including the International AIDS Society, the American Academy of HIV Medicine, and the Association of American Medical Colleges Group on Student Affairs in many roles on committees and task forces.

# Welcome to the 2019 Innovations in Medical Education Conference

The USC Registration Desk will be located in the San Gabriel Ballroom foyer. The registration desk is open all day starting at 8:30 am on Friday, February 22, 2019 and 7:30 am on Saturday, February 23, 2019.

Continental breakfast is provided on Friday, February 22 in the San Gabriel Ballroom Foyer for **Pre-Conference Workshop attendees only**.

Lunch is provided on Friday, February 22 in the San Gabriel Ballroom Foyer.

Continental breakfast and lunch are also provided on Saturday, February 23 in the San Gabriel Ballroom Foyer for all registered attendees.

For those attendees who have paid the additional fee for CME Credit for this conference, an email will be sent the week following the conference with instructions to complete your CME evaluation form and print your CME certificate.

A course evaluation questionnaire is provided at each session that we would appreciate you completing prior to your departure. This will help us plan future meetings.

Please place cell phones and beepers on vibrate and take any calls outside the meeting room.


# Medical Education Conference Certificate Program (MedEd Certificate Program within IME)

The Department of Medical Education at the Keck School of Medicine of USC is offering six interactive workshops each year aimed at providing participants with the principles and essential skills needed by educators in undergraduate and graduate medical education settings. The workshop activities are designed to maximize the transfer of knowledge and skills from the workshop setting directly to each participant's work setting. Workshops are delivered annually in conjunction with the Keck School of Medicine of USC Innovations in Medical Education Conference and related to one or more key roles – teacher, leader, scholar, and mentor.

All registered IME conference participants can attend any of these workshops (on a first come basis). There is no extra charge for participation in this program. However, to be eligible to earn a certificate you MUST first register. Go to this link: **http://tinyurl.com/ime-meded-certificate**

There is a three-step process for participating and earning your Certificate of Achievement.

Step 1: **Register** online at the link above so that we can track your participation.

Step 2: **Attend five MedEd Certificate Workshop** over three years during the IME Conference. To receive credit for each workshop you must submit the evaluation and feedback form provided in the session. Please make sure your name and learning points are legible.

Step 3: **Complete an online story form** about how you have changed your practice as a teacher, leader, mentor or scholar based on your participation in one or more of the five workshops attended. Your story form will be sent to you within three months of your completion of your fifth workshop.

Keck School of Medicine of USC

# CONFLICT OF INTEREST DISCLOSURE AND RESOLUTION

**Activity Date:** **February 22-23, 2019**

**Activity Title:** **Innovations in Medical Education 2019 Conference**

The Keck School of Medicine of USC takes responsibility for the content, quality and scientific integrity of this CME activity.

As part of the new commercial guidelines, we are required to disclose any real or apparent commercial conflict(s) of interest (COI) of all persons in control of educational content for this activity, specifically, but not limited to: faculty/presenters, CME committee members and/or planners. Any disclosed real or apparent commercial conflict(s) of interest (COI) have been resolved through a conflict resolution process prior to the beginning of this activity.

The Keck School of Medicine further requires that, if applicable, faculty/presenters disclose to the audience their intention to discuss the off label and /or investigational (not yet approved for any purpose) use of pharmaceuticals or medical devices at the beginning of their presentation.

## COURSE DIRECTORS

| Faculty Member | Commercial Interest | Conflict/Resolution |
|---|---|---|
| Cha Chi Fung, PhD | I do not have any relevant financial relationships with any commercial interests. | None |
| Julie Nyquist, PhD | I do not have any relevant financial relationships with any commercial interests. | None |

## CONFERENCE FACULTY

| Faculty Member | Commercial Interest | Conflict/Resolution |
|---|---|---|
| Faculty Speakers | The conference faculty have no relevant financial relationships with any commercial interests. | None |

## CME PLANNERS, MODERATORS, FACULTY & POSTER PRESENTERS

| | Commercial Interest | Conflict/Resolution |
|---|---|---|
| All CME planners and moderators | The CME planners and moderators have no relevant financial relationships with any commercial interests | None |

# Abstracts for Friday, February 22, 2019

| Time | Room | Session | Topic Area | Abstract Title | Authors | Page # |
|---|---|---|---|---|---|---|
| 9:00 - 11:30 AM | San Francisco Room | Pre-Conference Workshop | | Enhancing Your Learners' Patient Encounter Skills in Preparation for Clinical Skills Examinations | Win May, MD, PhD, FRCP; Kathy Herzberger, BSN, MS; Alan Liu, MD | 18 |
| 11:45 AM - 12:45 PM | Ballroom B2-C | Keynote Address | | Looking Forward: An Educator's Guide to Assessment | Peter J. Katsufrakis, MD, MBA | 20 |
| 1:00 - 2:30 PM | Ballroom B2-C | Oral Presentations of Innovations | Potpourri | Use of Machine Learning to Evaluate Robotic Surgical Performance and Predict Patient Outcomes | Chen, Jian; Hung, Andrew | 21 |
| 1:00 - 2:30 PM | Ballroom B2-C | Oral Presentations of Innovations | Potpourri | Expanding Awareness in Underserved Youth about the Diversity of Healthcare Careers | Castillo, Erick, MD, MPH | 22 |
| 1:00 - 2:30 PM | Ballroom B2-C | Oral Presentations of Innovations | Potpourri | Inter-professional OSCE Simulation Collaboration to Teach Obstetrics to Second Year Medical students | Ogunyemi, Dotun; Haltgin, Chris; Ferrari, Thomas | 24 |
| 1:00 - 2:30 PM | Ballroom B2-C | Oral Presentations of Innovations | Potpourri | Escaping the Untoward Effects of the ESCAPE Trial: A Multi-Disciplinary Hemodynamic Curriculum | McCauley, Brian; Kilic, Sena; Sharma, Esseim; Chu, Antony | 25 |
| 1:00 - 2:30 PM | Santa Barbara Room | MedEd Certificate Workshop | | NBME Item Writing Made Easy | Cha-Chi Fung, PhD | 26 |
| 1:00 - 2:30 PM | San Francisco Room | Conference Workshop | | Why Won't You Take My Good Advice? Teaching Motivational Interviewing and Empathic Communication | Ring, Jeffrey, Saffier, Kenneth | 27 |
| 1:00 - 2:30 PM | San Diego Room | Conference Workshop | | The Who, Why, and How of Video-Based Education on a Shoe String Budget | Phitayakorn, Roy; Axelsson, Gustaf; Healy, Michael G.; Wolbrink, Traci | 28 |
| 2:45 - 4:15 PM | Ballroom B2-C | Oral Presentations of Innovations | Undergraduate Health Professions Education | The Keck Anatomy Mentorship Program: A Near-Peer Educational Experience | Pott, Emily; Kazerouni, Kayvan; Jalali, Omid; Roy, Donovan; Vo, Anne | 30 |
| 2:45 - 4:15 PM | Ballroom B2-C | Oral Presentations of Innovations | Undergraduate Health Professions Education | The Musculoskeletal (MSK) Physical Exam: Improving Learner Confidence in an Essential Clinical Skill | Yu, Jaime; Guo, Qi; Hodgson, Carol S. | 32 |
| 2:45 - 4:15 PM | Ballroom B2-C | Oral Presentations of Innovations | Undergraduate Health Professions Education | Incorporating a Grading Rubric to Evaluate an Evidence Based Medicine Assignment | Wald, David A.; Pierce, Jenny; Tagge, Natalie; Fane, Kathleen; Barrett, Jeffrey; Roepke, Clare | 34 |
| 2:45 - 4:15 PM | Ballroom B2-C | Oral Presentations of Innovations | Undergraduate Health Professions Education | Evidence-Based Medical Education through an Integrative and Longitudinal Pharmacotherapy Curriculum | Mozeika, Alexander M.; Asri, Rijul; Barinsky, Gregory; Cennimo, David; Chen, Sophia; Lamba, Sangeeta | 35 |
| 2:45 - 4:15 PM | Ballroom B2-C | Oral Presentations of Innovations | Undergraduate Health Professions Education | Exploring Clerkship Students' Learning Styles to Aid in Design of a Pediatric Discharge Curriculum | Molas-Torreblanca, Kira; Maniscalco, Jennifer | 38 |
| 2:45 - 4:15 PM | Santa Barbara Room | MedEd Certificate Workshop | | Exploring How Our Environments Can Promote Resilience and Flourishing | Julie G Nyquist, PhD; Lavjay Butani, MD, MACM | 40 |
| 2:45 - 4:15 PM | San Francisco Room | Conference Workshop | | Your Student Posted What on Twitter?! Defining and Teaching eProfessionalism in the Digital Era | Davis, Mark; Harlan, Greg; Mojarad, Sarah | 41 |
| 2:45 - 4:15 PM | San Diego Room | Special Poster Session, SPS-001 | Assessment of Learner Performance | Using Competency-Based Scoring to Promote Student Growth | Patel, Sonal C., MA; Chuang, Chih, MD; Miller, Erin, MD; Hunt, Conrad, MBA; Gardner, Kanye, MBA; Booza, Jason, PhD; Steffes, Christopher, MD; Brennan, Simone, PhD; Saalman, Dustin, MA | 43 |
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| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #090 | Technology: Teaching - Online | Implementing a Self-Directed Learning Plan During an Emergency Medicine Clerkship | Wald, David A.; Ioannides, Kimon L.H.; Fujimoto Jessica; Barrett, Jeffrey; Fane, Kathleen | 188 |
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| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #092 | Technology: Teaching - Undergraduate Health Professions Education | Improving Curriculum of Global Health Courses with Machine Learning | Nezami, Elahe; Cohen, Landon; Kotthapalli, Manikanta | 190 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #093 | Technology: Teaching - Videos | Improving Common Curricula Deficits with Virtual Learning Videos | Dopp, Austin; Klesmith, Nathan; Self, Scott | 191 |

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| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #094 | Technology: Telehealth | Telehealth Innovations and Technologies: Training the Next Generation of Healthcare Professionals | Godleski, Linda, MD; Sanders, Karen M., MD; Galpin, Kevin, MD | 192 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #095 | Transitions: To Medical School | Impact of Non-Credit Summer Anatomy Course on Performance-Based Entry into Medical School | Yim, Gregory; Li, Sarah; Radujko, Ivan; Rich, Sushama; Lomiguen, Christine | 193 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #096 | Well-Being: Community Premed | Educational Course Utilizing Online Game-Based Learning to Improve Sleep in High School Students | Locke, Evan; Reilly, Jo Marie, MD, MPH | 194 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #097 | Well-Being: MS | Shining without Burning Out: Finding the Link between Personal Wellness and USMLE Step 1 Scores | Rutledge, Kyle; Grosteffon, Samantha | 196 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #098 | Well-Being: GME | Burnout and Wellness Among Residents Across Disciplines: A Pilot Examination | Ainger, Timothy; O'Connor, Kevin; Weber, Jodie | 198 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #099 | Well-Being: GME | Implementing a Spiritual Care Curriculum into a Pediatric Residency Program | Stevens, Paige; White, Travus | 199 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #100 | Well-Being: GME | Improving Resident Wellness and Preventing Burnout through Emotional Intelligence Training | Dang-Vu, Milan; Gonzalez, Sara | 201 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #101 | Well-Being: GME | Learning from Our Mistakes: Utilizing Just Culture Methodology to Improve Resident Education | Piazza, Scott; Gavarre, Eric; Oates, David; Faucette, Lindsey | 203 |
| 11:30 AM - 1:00 PM | Ballroom A-B | Large Saturday Poster Session, Poster #102 | Well-Being: Health Care Providers | Seeking Methods of Increasing Intrinsic Motivation to Exercise amongst US Health Care Providers | Silvas, Andrea; Ganji, Suma; Mansourkhani, Shiva, MD; Briones, David, MD; Skidmore, James; Hall, Jaid | 205 |
| 1:15 - 2:45 PM | Ballroom C | Best of Cool Ideas | Potpourri | Pediatric Resident Curriculum on Addressing Parental Vaccine Hesitancy | Chen, Hsuan-hsiu Annie; Pannaraj, Pia; Thompson, Michelle; Ben-Isaac, Eyal | 206 |
| 1:15 - 2:45 PM | Ballroom C | Best of Cool Ideas | Potpourri | A Child Poverty Curriculum Through Digital Storytelling | Shear, Marni; Lewinter, Katherine; Wu, Susan; Rao, Sheela; Thompson, Michelle; Christman, Grant | 207 |
| 1:15 - 2:45 PM | Ballroom C | Best of Cool Ideas | Potpourri | Utilizing Digital Nutrition Videos to Help Food Insecure Families Bridge the Gap from Farm to Table | Stiers, Katharine Blair; Tester, June, MD; Harlan, Gregory, MD | 209 |
| 1:15 - 2:45 PM | Ballroom C | Best of Cool Ideas | Potpourri | Writing for Success – Writing to Publish: Interactive Workshop for Health Professions Education Faculty | Birkman, Clair; Hodgson Birkman, Carol | 211 |
| 1:15 - 2:45 PM | Ballroom C | Best of Cool Ideas | Potpourri | Loving and Old Age: The Use of Documentary Film to Teach Elder Safety | Wright, Erika; Harlan, Greg; Nyquist, Julie; Capron, Alex; Schoen, Julie; Schaff, Pamela | 213 |
| 1:15 - 2:45 PM | Santa Barbara Room | MedEd Certificate Workshop | | Seeing is Believing: Techniques for Designing Effective Data Dashboards | Anne Vo, PhD; Daniel Novak, PhD | 214 |
| 1:15 - 2:45 PM | San Francisco Room | Conference Workshop | | Present Like a Boss: How to Deliver Better Didactics | Kim, Albert; Noelker, Joan | 215 |
| 1:15 - 2:45 PM | San Diego Room | Conference Workshop | | Developing Transparent Thinking Approach (TTA) -Based Medical Enhanced Ebooks (MEEB's) | Aliedeh, Mohammad; Aliedeh, Hashem | 217 |
| 3:00 - 4:30 PM | Ballroom C | Best of Cool Ideas | Graduate Health Professions Education | Educational Impact of a Podcast Covering Vitreoretinal Topics: One-Year Survey and Analytics Results | Sridhar, Jayanth; Cai, Louis | 219 |
| 3:00 - 4:30 PM | Ballroom C | Best of Cool Ideas | Graduate Health Professions Education | #PHMFellowJC: Engaging Learners in a Discussion of Pediatric Articles through a Twitter Journal Club | Chen, Jennifer K.; Kyler, Kathryn; Morrison, John; Tang-Girdwood, Sonya | 221 |
| 3:00 - 4:30 PM | Ballroom C | Best of Cool Ideas | Graduate Health Professions Education | Don't Worry, Be Appy! An Intervention to Increase Fellows' Ability to Treat Rare Critical Events | Boucharel, Adria; Nyquist, Julie; Besinque, Kathleen; Yaster, Myron | 223 |
| 3:00 - 4:30 PM | Ballroom C | Best of Cool Ideas | Graduate Health Professions Education | Developing Resident Clinical Precepting Skills in the Emergency Department | Murray, Collyn T; Kim, Albert J. | 225 |
| 3:00 - 4:30 PM | Ballroom C | Best of Cool Ideas | Graduate Health Professions Education | Self-Directed Learning in the 21st Century: Using Online Educational Resources Thoughtfully | Shamoon, Michael, MD; Nyquist, Julie, PhD | 227 |

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| 3:00 - 4:30 PM | Santa Barbara Room | MedEd Certificate Workshop | | Teaching at the Bedside in the 21st Century | Cathy Jalali, PhD; Donna Elliott, MD, EdD | 229 |
| 3:00 - 4:30 PM | San Francisco Room | Conference Workshop | | Innovations in Teaching and Learning with Technology | Maldonado, Maria; Ramos, Jennifer; Vallejo, Alberto | 230 |

**Enhancing Your Learners' Patient Encounter Skills in Preparation for Clinical Skills Examinations**

Win May, MD, PhD, FRCP [1]; Kathy Herzberger, BSN, MS [2]; Alan Liu, MD [1]
*[1] Keck School of Medicine of USC; [2] Loma Linda University School of Medicine*

**Workshop Description:** Physicians are expected to provide holistic and compassionate patient care through gathering and synthesizing information during the patient encounter, which will allow them to define the patient's clinical problem and manage the patient. Learners are often in need of enhancing these skills. This workshop will focus on how you can utilize a recorded encounter to identify challenges in a learner's clinical performance and practice some interventions to enhance the clinical skills of your learners in preparation for clinical skills examinations.

**Need/Rationale:** Physicians are expected to provide holistic and compassionate patient care through gathering and synthesizing information during the patient encounter, which will allow them to define the patient's clinical problem and manage the patient. Learners are often in need of enhancing these skills. This workshop will focus on how you can utilize a recorded encounter to identify challenges in a learner's clinical performance and practice some interventions to enhance the clinical skills of your learners in preparation for clinical skills examinations.

**Objectives:** At the end of the workshop, you will be able to:
1. Discuss barriers in identifying challenges in learner performance
2. Identify the learner's area of challenge through a video review
3. Practice some interventions to enhance the learner's skills in that area
4. Share which of these interventions you already use
5. Discuss which interventions could be applied in your home institution

**Session Methods and Formats:**
We will be using short didactics, videos, small and large group discussions. We will be following up the participants after 6 months and provide support if they need it.

**Timeline:**
5 minutes: Introduction of facilitators. Ask two people why they are attending.
2 minutes: Slide: Objectives
10 minutes: Facilitated discussion of recognizing barriers in identification of challenges in learner's clinical performance (Large group)
10 minutes: Outline the three stages in enhancement of learner performance. (large group)
10 minutes: Participants will review a 10-minute video of a student encounter in the large group. They will rate the student using a checklist. (Large group)
10 minutes: Participants will be divided into 3 groups. Each group will identify the challenges that the learner is experiencing with regard to the History component and discuss interventions they may want to use. (Small group)
10 minutes: Presentation in the large group by each of the groups, with facilitated discussion (large group)
10 minutes: Each group will identify the challenges that the learner is experiencing with regard to the Physical Exam, and come up with interventions to use with the learner (Small group)
10 minutes: Presentation by each group with facilitated discussion (Large group)
10 minutes: Each group will identify the challenges that the learner is experiencing with regard to the Communication and Interpersonal Skills, and come up with interventions to use with the learner (Small group)
10 minutes: Presentation by each group with facilitated discussion (Large group)
10 minutes: Each group will review the patient note that the student wrote for the case and identify challenges, and what interventions could be used with the learner (small group)
10 minutes: Presentation by each group with facilitated discussion (Large group)
10 minutes: Presentation of alternative strategies/interventions to enhance clinical skills of learners (Large group)

10 minutes: Discussion of interventions that could be applied in own setting
5 minutes: Each participant writes one thing that she/he would do based on today's workshop and leave a copy with facilitators.
5 minutes: Workshop evaluation
TOTAL: 140 minutes

**Experience:**
Win May is Professor and Director of the Clinical Skills Education and Evaluation Center.
Kathy Herzberger is Instructor of Medicine at the Clinical Skills Education Office.
Alan Liu is Assistant Professor and Assistant Director of the Clinical Skills Education and Evaluation Center.

**Resources for take-away:**
Checklist for assessment of learner videos
Possible interventions for use in enhancement of clinical skills

**Looking Forward: An Educator's Guide to Asessment**

Peter J. Katsufrakis, MD, MBA
*President and CEO, National Board of Medical Examiners*

Dr. Katsufrakis will review sound assessment practices. He will discuss different frameworks (Bloom's taxonomy, Miller's pyramid, RIME, etc.) and validity, as well as address considerations in developing a single assessment or a program of assessment.

**Use of Machine Learning to Evaluate Robotic Surgical Performance and Predict Patient Outcomes**

Chen, Jian; Hung, Andrew
*Keck School of Medicine of USC, Institute of Urology*

**Idea/Problem Statement:** Current surgical skills evaluation rely on surgeons' self-report of surgical experience or peer assessments, both of which can be subject to bias.

**Need/Rationale:** Surgical performance is crucial for patient clinical outcomes (1). The current criterion standard for surgeon evaluation is by the surgeon's previous case volumes, or by peer review of the surgery. These methods are subjective, which cannot meet the needs for surgical education and quality improvement (2). Systems data captured directly from the surgical robot provide a novel opportunity to more accurately and objectively measure surgeon performance (3). Utilizing machine learning (ML), a form of artificial intelligence, we can recognize broad patterns of the robotic system data, and learn surgical performance traits that are otherwise imperceptible to human reviewers. In this study, we present a novel ML method of processing automated performance data to evaluate surgical performance and predict clinical outcomes after robot-assisted radical prostatectomy (RRP).

**Methods:** With a novel recording device, the "dVLogger" (Intuitive Surgical), we captured automated performance metrics (instrument motion tracking metrics and system events recorded in Cartesian coordinates) directly from the da Vinci Surgical System during RRP. We then trained a "Random Forest" ML model utilizing automated performance metrics (training material) and hospital length of stay (LOS; label) (≤2 days and >2days) after RRP. The trained model then categorized study cases into "Predicted expected LOS (pExp-LOS)", and "Predicted extended LOS (pExt-LOS)" groups. We compared the clinical outcomes of the two groups using Kruskal-Wallis test and Fisher's exact test. We then trained the model to directly predict individual clinical outcomes, and we determined the association between the ML predicted results and the actual patient outcome using Spearman's correlation study and Fisher's exact test. Finally, we identified the five most relevant metrics adopted by the model during learning and prediction.

**Evaluation Plan/Results:** Seventy-eight RRPs from August 2016 to March 2017 were studied, 67 patients had LOS ≤2 days, 11 patients had LOS >2days. The ML model predicted 73 cases as "pExp-LOS" and 5 cases as "pExt-LOS". The predictive accuracy was 87.2%. Surgeries in the "pExp-LOS" group outperformed the "pExt-LOS" group in surgery time (3.7 vs 4.6 hours, $p=0.007$), LOS (2 vs 4 days, $p=0.02$), and Foley catheter duration (9 vs 14 days, $p=0.02$). Patient outcomes predicted by the ML model had significant association with the 'ground truth' in surgery time ($p<0.001$, $r=0.73$), LOS ($p=0.05$, $r=0.52$), and Foley duration ($p<0.001$, $r=0.45$). The five most relevant metrics adopted by ML model in predicting surgery time, LOS, Foley duration and pelvic drainage volume were all related to metrics involving the surgeon's manipulation of the robotic camera position.

**Potential Impact/Lessons Learned:** Automated performance metrics and ML algorithms may help assess surgical performance and predict clinical outcomes. With further refinement, this process will become more accurate and sophisticated. In the near future, we will be able to personalize surgeon training.

**References:**

1) Birkmeyer J, Finks J, O'Reilly A, et al. Surgical skill and complication rates after bariatric surgery. N Engl J Med. 2013 Oct 10;369(15):1434-42.
2) Lendvay TS, White L, Kowalewski T. Crowdsourcing to assess surgical skill. JAMA Surg. 2015 Nov;150(11):1086-7.
3) Hung AJ, Chen J, Jarc A, et al. Development and validation of objective performance metrics for robot-assisted radical prostatectomy - A pilot study. J Urol. 2017 Jul 29. pii: S0022-5347(17)77239-4.

**Expanding Awareness in Underserved Youth about the Diversity of Healthcare Careers**

Castillo, Erick, MD, MPH
*White Memorial Medical Center Family Medicine Residency Program*

**Idea/Problem Statement:** Individuals from underserved communities often lack exposure and knowledge regarding different career paths which can limit what they aspire to be.

**Need/Rationale:** Racial minorities are projected to constitute a majority of the US population by 2050, therefore it is important this be reflected in the workforce. Failure to attract and retain minority youth towards health care careers continues to be challenging (1). In order to increase healthcare professionals coming from underserved communities, the number of college bound students needs to increase. Studies found that perceived barriers were the most influential factor in students' ability to reach their educational goals (3). These perceived barriers are often based on what is experienced at home and in school. Even students with very challenging social contexts can formulate high expectations if they have verbal encouragement, opportunities for vicarious learning, and step-by-step mastery experiences related to their educational goals (2). This is where successful partnerships with the community can attempt to increase the number of underrepresented minority students entering health professions.

**Methods:** In 2016 the family medicine residency program at White Memorial Medical Center began a collaboration with Theodore Roosevelt Senior High School located in Los Angeles, CA. Roosevelt is composed of 98.7% Hispanic/Latino students of which 97.2% are socioeconomically disadvantaged. The Los Angeles School District Fall 2017 college/career indicator showed that only 20% of the students from Roosevelt were identified as being prepared for college. The collaboration aimed at supporting the biomedical sciences curriculum at Roosevelt High School by preparing monthly presentations to a classroom consisting of 16 students. This took place from September 2017 to May 2018. The idea is to spark interest, mentor, and expose students to different careers in the medical field. Lectures were led by residents from the family medicine residency program and focused on topics that aligned with what was being covered in class, including diabetes, heart disease, preventative medicine, and genetics. At the end of each session, time was allotted to allow students to ask general questions. The final session took place at White Memorial Medical center where students participated in a suturing session, a tour of the hospital, and heard from a panel of medical professionals that included residents, physical therapy, occupational therapy, nursing, social work, and speech therapy. By exposing these students to different careers, they might be more likely to engage and pursue careers.

**Evaluation Plan/Results:** To evaluate students baseline knowledge regarding the array of medical careers, pre- and post- surveys were collected. Pre-surveys conducted for the 2017-2018 cohorts consisted of 16 students. When asked if they could list at least five careers in the medical field, 25% said they could, 44% were not sure, and 31% said they could not. With regard to interest in pursuing a career in the medical field, 56% agreed, 31% not sure, and 12% disagreed. After the yearlong monthly classroom sessions, the post- survey found that there was an increase to 86% of individuals that were interested in pursuing a career in the medical field. The ability of being able to list at least five careers in the medical field increased to 42%, those who were unsure was 58%, and none of the individuals disagreed.

**Potential Impact/Lessons Learned:** Classroom sessions can increase interest in health care careers and can ultimately lead to a more diverse workforce, however without a larger group of students it is difficult generalize results. We will continue to engage, motivate, and empower these students to pursue their goals.

**References:**

1) Behnoosh, A., Santos, R., MBA, Angulo, M, & Muratori, W. A Novel Enrichment Program Using Cascading Mentorship to Increase Diversity in the Health Care Professions. Academic Medicine, Vol. 88, No. 9 / September 2013.

2) Gonzalez, LM. College-Level Choice of Latino High School Students: A Social-Cognitive Approach. Journal of Multicultural counseling and development. July 2012. Vol. 40.
3) Perceived barriers prevent Mexican-American students from pursuing education, researcher finds (2009, March 4) retrieved 27 August 2018 from https://phys.org/news/2009-03-barriers- mexican-american-students-pursuing.html

**Inter-professional OSCE Simulation Collaboration to Teach Obstetrics to Second Year Medical Students**

Ogunyemi, Dotun; Haltgin, Chris; Ferrari, Thomas
*California University of Science and Medicine; Beaumont Hospital, Royal Oak, Michigan; Oakland University, William Beaumont School of Medicine, Rochester Hills, Michigan*

**Idea/Problem Statement:** To assess the efficacy and acceptance of an inter-professional OSCE-based stimulation with school of nursing amongst medical students

**Need/Rationale:** IPE has been shown to facilitate improved patient-centered care

**Methods:** In the second year of our obstetrics simulation curriculum for 2nd year medical students, we introduced OSCE assessment in collaboration with nursing school educators. The program took place in the nursing school simulation center. Students in groups of 3-4 rotated through three stations, each for 20 minutes: 1) Simulated vaginal delivery demonstrated to students by nurse educator and OBGYN resident. Each student guided in delivering a baby; 2) MFM faculty gave interactive presentations on fetal heart rate (FHR). Then, a student nurse role played with each student to inform their understanding, communication and clinical reasoning skills as assessed by OSCE format; 3) OBGYN resident and basic science faculty taught students and assessed students on cervical dilation using “blinded” and “open” cervical models. Students completed the same surveys on attitude (6 questions, range 1-5), and knowledge (6 questions, maximum score 15) before, after and 7 months after the curriculum. The mean Likert scores of the pre- and post-survey scores were compared using t test to determine significant differences. A p value $<0.05$ was taken as significant.

**Evaluation Plan/Results:** Of 95 students, mean scores for the FHR OSCE were: identifies FHR baseline = 0.97, identifies FHR variability= 0.92, provides accurate identification of periodic pattern= 0.73, identifies FHR category= 0.67 and orders appropriate medical interventions=0.93.For the cervical station OSCE, the mean score on cervical examination skills after training was 75%., For the knowledge questions on obstetrics and fetal heart rate monitoring, students obtained a mean pre-score of 2.57 + 0.09, post-simulation the mean score increased to 3.24 + 0.11 ($p<0.001$) and 8 months later it was 2.37 + 0.12 . Pre-simulation; students scored their comfort level with obstetrical procedures as 12.2 + 0.63, after simulation the mean score increased to 28+-.63($p<0.001$) and 7 months later it decreased to 16.1+1 ($p=0.001$).

**Potential Impact/Lessons Learned:** An OSCE-based inter-professional course improved students’ short-term knowledge, however, this knowledge dropped back to baseline 7 months after the program was completed. Students’ comfort level increased immediately post-training then decreased, but overall was still higher than baseline at 7 months.

**References:**

**Escaping the Untoward Effects of the ESCAPE Trial:**
**A Multi-Disciplinary Hemodynamic Curriculum**

McCauley, Brian; Kilic, Sena; Sharma, Esseim; Chu, Antony
*Warren Alpert Medical School of Brown University*

**Idea/Problem Statement:** Staff familiarity with PACs in the CCU environment has dropped in the wake of the ESCAPE trial in 2005.

**Need/Rationale:** Following the ESCAPE Trial in 2005 the use of pulmonary arterial catheters (PACs) has waned within our facility. An unintentional byproduct of a reduction in PAC use was decreased familiarity with PACs among our Cardiac Care Unit (CCU) staff; namely CCU Registered Nurses, Residents, and Fellows. To combat staff trepidation, we created a core lecture series delivered on-line in a “Khan Academy” format. There are five total modules, taken in series. In order, we provided a general introduction to PACs, acquisition of hemodynamic data, interpretation of PAC waveforms, hemodynamic calculations, and case-based application of invasive hemodynamic care. We measured staff perceptions toward the various subjects as well as knowledge in both pre/post assessments.

**Methods:** A core content consisting of five modules, each lasting less than 20 minutes was created, and delivered via web content. Both pre- and post-questionnaires were administered in tandem with each module. Two questions were Likert-scale based targeting learner confidence around the core lessons for a given module, and three questions assessed the learners’ mastery of module content. Independent student’s t-test was used to compare means of independent continuous variables. Statistical analysis was performed with SPSS version 25.0 (SPSS Inc, Chicago, Illinois) and significance defined as 2-tailed $p<0.05$.

**Evaluation Plan/Results:** This data represents a Phase I rollout. A total of 17 critical care unit registered nurses, 11 internal medicine residents, and 5 cardiology fellows completed the training modules and assessments. Pre-education nursing learner confidence across the platform was rated as “2.8 out of 5,” resident learner confidence was rated as “1.2 out of 5,” and cardiology fellow learner confidence across the platform was rated as “1.9 out of 5.” All learners report improvement post-educational module with average rating of “4.8 out of 5.” Pre-education content mastery was 27% for nursing learners, 21% for residents, and 34% for cardiology fellows. Post-education content mastery was 88% for nurses, 91% for residents, and 98% for cardiology fellows.

**Potential Impact/Lessons Learned:** The implementation of a succinct web-delivered invasive hemodynamic curriculum to a multidisciplinary team in the CCU lead to improved attitudes as well as an increased mastery of core knowledge required for caring with individuals with PACs.

**References:**

1) Binanay C, Califf RM, Hasselblad V, et al. Evaluation study of congestive heart failure and pulmonary artery catheterization effectiveness: the ESCAPE trial. JAMA. 2005;294(13):1625-33.
2) Ragosta M. Textbook of Clinical Hemodynamics. Elsevier Health Sciences; 2008.
3) https://www.ted.com/talks/sal_khan_let_s_teach_for_mastery_not_test_scores?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare

**NBME Item Writing Made Easy**

Cha-Chi Fung, PhD
*Keck School of Medicine of USC*

**Workshop Description:** This hands-on workshop will use clinical vignettes and practical examples to induce participants' deeper understanding of the construction of good exam item that adheres to the standards established by the National Board of Medical Examiners (NBME).

**Workshop Rationale:** Faculty often struggle with writing valid and reliable examination items that test learners' knowledge of the medical sciences. This task became even more daunting as the item types became more complex. This hands-on workshop will use clinical vignettes and practical examples to induce participants' deeper understanding of the construction of good exam item that adheres to the standards established by the National Board of Medical Examiners (NBME).

**Intended workshop participants:** This session is intended for participants who wish to construct NBME style multiple choice exam (MCQ) items in the health professions education.

**Learner outcome objectives:** By the end of the workshop, participants will be better able to
1. identify appropriate objectives for the content area to be tested using MCQ style items
2. complete the exam item blue print used to develop new exam items.
3. Construct MCQ items that adhere to the NBME standards using the item template.

**Instructional methods/content, activities, schedule:**
Session facilitator will use a number of different pedagogical approaches throughout the workshop to help participants attain the learning objectives.

Getting to know you (large group discussion) – 10 minutes.
Exam blueprint principles (lecture) – 10 minutes.
Filling out the exam blue print (individual activity) – 15 minutes.
Sharing examples of the blue print (large group discussion) – 10 minutes.
Item structures and principles of good item writing (lecture) – 15 minutes.
Item writing exercise (individual work) – 10 minutes.
Pair-Share the items and critique (group work) – 10 minutes.
Large group sharing of the examples – 5 minutes
Session wrap up/summary – 5 minutes

**Why Won't You Take My Good Advice?**
**Teaching Motivational Interviewing and Empathic Communication**

Ring, Jeffrey; Saffier, Kenneth
*Health Management Associates; Contra Costa Regional Medical Center*

**Workshop Description:** Research shows that Motivational Interviewing (MI) is more effective than advice-giving in facilitating patient behavior change. As such, MI is a powerful and effective tool for enhancing shared-decision making, relationship-building and both patient and practitioner wellness. MI is built on principles of empathy, autonomy, relationship, and respect. This workshop will provide participants with a deeper understanding of Motivational Interviewing and the Readiness to Change Model.

**Objectives:** By the conclusion of this presentation, participants will:
1. Deepen their understanding of Motivational Interviewing and the Stages of Change Model
2. Enhance their capacity to teach empathic communication and MI
3. Obtain resources for clinical applications of Motivational Interviewing as well as instructional tools

**Intended participants**: Anyone who provides clinical care and/or instructs other in practitioner-patient communication.

**Methods:** This workshop is designed to be interactive and engaging. The session will reflect a mix of group discussion, mini-didactic presentations and opportunities to learn and practice core aspects of Motivational Interviewing. The instructors will regularly pause to provide group reflection on the teaching skills involved in each portion of the workshop, with an eye to applications back at their home sites. Moreover, the presenters will demonstrate Motivational Interviewing throughout the entire workshop.

**Activity Timeline:**

| | |
|---|---|
| 00:00 – 00:15 | Introductions to presenters, participants and agenda |
| 00:15 – 00:45 | Verbal and non-verbal empathic communication and reflective listening: Overview, Skills and Practice |
| 00:45 – 01:15 | Motivational Interviewing, Stages of Change, Righting Reflex, Open Ended Questions, Decision Balance and Readiness Ruler: Overview, Skills, and Practice |
| 01:15 – 01:30 | Case Applications, Questions and Discussion |

**Resources:**
www.motivatehealthyhabits.com
https://asam.app.box.com/s/ts4rmgk94zvg1hvdrz5ul37k4tyzxep1
https://www.youtube.com/watch?v=s3MCJZ7OGRk
https://video.search.yahoo.com/search/video?fr=ush-mailn&p=youtube+brene+brown+empathy#id=1&vid=2bef58078d19681480b34e2a608c3348&action=click

**The Who, Why, and How of Video-Based Education on a Shoe String Budget**

Phitayakorn, Roy [1, 4]; Axelsson, Gustaf [1. 2]; Healy, Michael G. [1, 2]; Wolbrink, Traci [3, 4]
*[1] The Massachusetts General Hospital; [2] NEJM Group; [3] Boston Children's Hospital; [4] Harvard Medical School*

**Workshop Description:** Video-based education (VBE) is an increasingly important topic in medical education as many medical schools are starting to incorporate flipped classroom approaches to their didactic curricula. These approaches require the ability to create effective videos and asynchronous instructional techniques utilizing adult learning theories. This workshop will give its learners an opportunity to learn more about the need for video-based medical education and how to select the right format for a video

**Rationale:** In a lecture-based setting, many concepts are challenging to explain using only text and images. However, videos allow for instructors to use images and text in an entirely different manner, which improves learner outcomes including attention, motivation, and knowledge retention. Additionally, videos align well with different “types” of learners, especially those that value a more visual type of learning for certain topics. Furthermore, the dramatic evolution in technology allows instructors to cost effectively create and distribute educational video-based material beyond the classroom setting. Unfortunately, it can be difficult for medical education instructors to find training in how to create and integrate videos into their existing curricula.

This workshop will be 90 minutes long and is ideally suited for up to 20 participants to ensure a high faculty to learner ratio. Participants will receive approximately 15 minutes of didactic education and have the remaining time to practice video filming, editing, and incorporation into teaching materials. The faculty of this workshop proposal have conducted this workshop format successfully in other medical education forums and feel it is an ideal way to learn new skills in a brief time frame.

**Learner Outcome Objectives:** At the end of this workshop, participants will be able to:
1. Explain the value of video-based education within the larger medical education landscape.
2. Demonstrate how to shoot a clear video with acceptable audio using their mobile device.
3. Edit the video using a free video editing tool.
4. Integrate their video into an existing medical education presentation or teaching session.

**Intended Participants:** Health care professional educators and/or clinicians interested in new medical education learning technologies.

**Methods**: The faculty of this workshop will use a combination of short interactive didactic education with hands-on skill building practice sessions. This workshop will support adult learning principles that follows a Kolb experiential learning model/approach.

**Activity Timeline:**
Introduction of faculty and participants (10 minutes)
Didactic education on the current state of learning technologies and video-based education in the setting of Millennial learners (15 minutes)
Demonstration and practice of setting up and filming a video shoot (10 minutes)
Demonstration and practice of editing a video (35 minutes)
Demonstration and practice of integrating a video into existing teaching materials (10 minutes)
Debrief and wrap-up (10 minutes)

**Take Home Tools:** Participants will be able to take home all advance organizers distributed during this workshop including a list of video-based education resources and the video they create during the workshop.

**References:**


1) Colasante M (2011). Using video annotation to reflect on and evaluate physical education pre-service teaching practice. Australasian Journal of Educational Technology. 27(1): 66-88.
2) Sherin MG, Es van EA (2009). Effects of video club participation on teachers' professional vision. Journal of Teacher Education. 60(1): 20-37.
3) Chang D, Zhou R, Briggs O, Nunamaker Jr JF (2006). Instructional video in e-learning: Assessing the impact of interactive video on learning effectiveness. Information and Management. 43: 15-27
4) Calandra B, Brantley-Dias L, Dias M (2006). Using digital video for professional development in urban schools: A preservice teacher's experience with reflection. Journal of Computing in Teacher Education. 22(4): 137.

**The Keck Anatomy Mentorship Program: A Near-Peer Educational Experience**

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**Idea/Problem Statement:** The effects of a gross anatomy (GA) longitudinal near-peer teaching (NPT) program in undergraduate medical education are under-studied.

**Need/Rationale:** GA is known to be beneficial to most, if not all specialties within medicine. The Keck School of Medicine (KSOM) is one of many that uses cadaveric teaching. GA is a unique aspect of medical training that provides a platform for strengthening academic learning through teambuilding and communication. While the literature touts the benefits of NPT, there is a dearth of research that explains the added value of the longitudinal relationship between near-peer mentor and student in a structured context. A longitudinal NPT experience can facilitate students reaping the benefits that GA already provides. Our intervention, the Keck Anatomy Mentorship Program (KAMP) supplements KSOM's cadaveric curriculum with NPT by pairing two first-year (MS1) students with a second-year (MS2) mentor over the course of an academic year. The program aims to: 1) Accelerate MS1s' GA performance; 2) Provide a platform for MS2s to develop leadership skills.

**Methods:** KAMP was piloted during AY2016-2017 as a supplement to the existing GA curriculum. The Office of Academic Support Services identified 21 MS1 mentees from the class of 2020 and 10 MS2 mentors from the class of 2019 to voluntarily participate in KAMP. MS1s who did not have prior GA experience, were non-science majors were invited to participate. MS2s were selected based on exemplary performance on 5, first-year GA exams and interpersonal communication skills. Each mentor was paired with two MS1s for the duration of the program. One group consisted of one mentor and three MS1s. Mentors were tasked with leading a 2-hour teaching session in the cadaver lab that corresponded with each lab dissection. KAMP student performance was analyzed through three distinct methods: 1) comparing KAMP students' scores to the scores of their class of 2020 peers; 2) comparing KAMP students' scores to a post-hoc control group constructed from a sample of classes of 2015-2019 students' grades; 3) Comparing KAMP students' actual exam performance to their expected performance based on a predictive model created using historical data. Prior to conducting analyses, all students' incoming undergraduate GPA and MCAT scores were combined into a composite score using the formula (GPA x 10) + MCAT (i.e., Lizzy M; a commonly used metric by which pre-medical students assess their competitiveness for medical school applications). Comparisons were made using Mann-Whitney U tests ($\alpha < .05$).

**Evaluation Plan/Results:** KAMP enrollees made up 11% of the class of 2020 (n=21), non-KAMP students comprised 89% (n=166). KAMP students were found to have significantly lower incoming LizzyM scores than their non-KAMP peers (64.6±2.9 vs. 72.1±2.9, $p<0.001$). A significant positive correlation was found between LizzyM scores and composite GA practical exam scores ($r=0.24$, $p<0.001$). A line of best fit was calculated ($y=43.11+0.58x$). We used this line of best fit as a historical model to predict the GA practical exam performance of the class of 2020. Students' composite GA practical exam scores (n exams = 4) were plotted against the line of best fit, and the numerical distance from the line for each student (i.e., the residual) was recorded. KAMP students were found to have significantly higher residual scores than their non-KAMP peers. KAMP students performed an average of 6.22 points above their predicted score, while non-KAMP students performed an average of 0.46 points below their expected score ($p<0.001$). Comparisons of the average performance on four exams indicated that KAMP students scored significantly higher than non-KAMP students (86.6±5.6 vs. 83.9±6.6, $p=0.03$). KAMP student's LizzyM scores (n=21; Mdn = 64) did not differ significantly from those of non-KAMP post-hoc control scores (n=102, Mdn=65.10) ($p=0.358$). KAMP students' composite GA practical exam scores were significantly higher than non-KAMP post-hoc control students' (Mdnnon-KAMP = 86.38 vs. MdnKAMP = 81.29, $p = 0.0015$).

**Potential Impact/Lessons Learned:** Completion of KAMP improved participants' GA practical exam scores. The program has expanded to service additional students and has the potential to be scaled up. Further study will involve analyzing focus group data to assess fidelity of implementation and perceived benefit.

**References:**


1) Leveritt S, McKnight G, Edwards K, Pratten M, Merrick D. What anatomy is clinically useful and when should we be teaching it?Anat Sci Educ. 2016 Oct;9(5):468-75. doi: 10.1002/ase.1596. Epub 2016 Feb 5.
2) Bergman EM, van der Vleuten CP, Scherpbier AJ. Why don't they know enough about anatomy? A narrative review. Med Teach. 2011;33(5):403-9. doi: 10.3109/0142159X.2010.536276. Epub 2011 Feb 28.
3) Davis CR, Bates AS, Ellis H, Roberts AM. Human anatomy: let the students tell us how to teach. Anat Sci Educ. 2014 Jul-Aug;7(4):262-72. doi: 10.1002/ase.1424. Epub 2013 Nov 18.

**The Musculoskeletal (MSK) Physical Exam: Improving Learner Confidence in an Essential Clinical Skill**

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**Idea/Problem Statement:** This project evaluates an innovative approach in teaching the MSK physical examination (PE) skills and the effect on learner self-reported confidence.

**Need/Rationale:** Musculoskeletal disorders are well recognized as common clinical conditions that comprise a significant number of health care visits to generalist and specialist physicians. Despite the prevalence of such conditions, Monrad et al. (2011) highlighted suboptimal teaching of MSK medicine at the undergraduate medical education level. One significant component of MSK medicine curricula is the teaching and learning of PE skills specific to MSK. Competence in these skills is essential for physicians, but Day et al. (2007) has shown low learner confidence and competence in MSK skills. With this context in mind, this project examined the following: 1) Are students entering clerkship with a level of confidence in the MSK PE matching that of other fundamental PE skills?; 2) Can the teaching method and delivery of MSK PE skills influence student confidence in performing these clinical skills?; 3) Does early interest in MSK specialty and shadowing experiences influence students' confidence in MSK PE?

**Methods:** Musculoskeletal PE skills are taught in the second year of our 4-year undergraduate medical education program. Students complete 4 sessions covering the regional joint examinations. Historically, 2 sessions were facilitated by trained patient volunteers with chronic MSK diagnoses, and 2 were facilitated by MSK clinicians. The patient volunteer program was discontinued and a new curriculum was implemented in 2017-18. This new curriculum utilized spaced practice and a standard framework. The framework focused on deconstructing each regional joint exam into component parts. The initial session focused on surface anatomy, range of motion, and palpation, followed by a second session 1-2 weeks later that focused on MSK special tests. This new curriculum was facilitated entirely by clinicians. Students were invited to complete a voluntary anonymous survey at the beginning of third-year, just prior to starting clerkship rotations. Survey questions included self-confidence in performing the core system PEs. Two cohorts were recruited, one prior to (2017) and one after (2018) the curricular change described. Mean values of the self-reported confidence scores were compared using repeated measures ANOVA and significant differences in confidence between system PE and between cohorts were calculated using SPSS V24. Path analysis was completed using Mplus V7.11 to identify factors associated with higher self-confidence in the MSK PE. This project had ethics approval.

**Evaluation Plan/Results:** Response rates for the online survey were 83% (134/162) for the 2017 cohort and 75% (123/164) for the 2018 cohort. Mean self-assessed confidence was significantly lower for the MSK PE (2.5/4.0 2017 cohort, 2.8/4.0 2018 cohort) than the cardiovascular, respiratory, and abdominal examinations in both cohorts (all $p < 0.001$). MSK PE confidence was not statistically different than confidence in the neurological PE ($p = 0.859$). Significant improvement in MSK PE confidence was noted between the 2017 to 2018 cohorts (+0.32, $p < 0.001$), with no other significant changes in confidence noted in any other system PE between the two years. Path analysis demonstrated that students with early preference for an MSK-related specialty had significantly more shadowing experiences in physical medicine & rehabilitation (standardized regression coefficient $b = 0.304$, $p = 0.013$), which then contributed to significantly higher MSK PE confidence ($b = 0.121$, $p = 0.024$). In addition, early preference for an MSK specialty also had a significant direct positive effect on MSK PE confidence ($b = 0.493$, $p < 0.001$).

**Potential Impact/Lessons Learned:** Our innovative MSK PE curriculum significantly improved medical student confidence in performing this essential clinical skill, but it still remains lower than other system PE's. Early interest in MSK specialties is associated with higher confidence, but engagement of all learners remains important.

**References:**


1) Monrad SU, Zeller JL, Craig CL, DiPonio LA. Musculoskeletal education in US medical schools: lessons from the past and suggestions for the future. Curr Rev Musculoskelet Med. 2011; 4:91-98.
2) Day CS, Yeh AC, Franko O, Ramirez M, Krupat E. Musculoskeletal medicine: An assessment of the attitudes and knowledge of medical students at Harvard medical school. Academic Medicine. 2007; 82:452-457.
3) Oswald AE, Bell MJ, Snell L, Wiseman J. The current state of musculoskeletal clinical skills teaching for preclerkship medical students. The Journal of Rheumatology. 2008; 35(12):2419-2426.

**Incorporating a Grading Rubric to Evaluate an Evidence Based Medicine Assignment**

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**Idea/Problem Statement:** We developed and incorporated a standardized grading rubric for a required evidence-based medicine (EBM) assignment.

**Need/Rationale:** For the past two years, we have incorporated a required EBM assignment into our emergency medicine clerkship using standardized case vignettes focusing on four clinical conditions relevant to the practice of emergency medicine. The assignment has been well received (1). Specific guidelines and instructions for submitting the assignment have been developed and updated annually as needed. We have since identified the need to develop a more consistent and uniform way of evaluating this assignment. This is important as the assignment is completed by more than 200 students annually and is worth 5% of the end of rotation grade. To address this need, we sought to develop and implement a grading rubric to allow faculty to better evaluate this assignment along with providing consistent written feedback to the students in a more standardized and uniform fashion.

**Methods:** In conjunction with our health science research librarians, we developed an original rubric to evaluate a required EBM assignment. The rubric contains 6 domains which are used to grade each student's assignment. The rubric was developed with anchors to assist in completion. The rubric is based upon the submission guidelines and is available to the students to review prior to completing their assignment. 5 of 6 domains are evaluated as: "Below Expectations", "Meets Expectations", "Above Expectations". The bulk of the evaluation focused on whether the submission met expectations or whether the write up exceeded or did not meet expectations based on predefined anchors. The five domains evaluated in the three-tiered approach are: 1) Identifies an article; 2) Describes the importance of the clinical condition; 3) Describes the study methodology; 4) Describes the study results; 5) Overall write up. After each assignment is reviewed and the six domains assessed, an overall grade is assigned for each case using a 5 point scale: 1-2, Below Expectations; 3, Meets Expectations; 4-5, Above Expectations. For each completed assignment, written feedback is also provided to the students highlighting each of the 6 domains.

**Evaluation Plan/Results:** In the first 5 months of the 2018-19 academic year, 79 EBM assignments were submitted by 75 students (4 students completed a 2nd rotation and completed a 2nd assignment). Fifty (66%, n-75) students completed the post-rotation questionnaire. Forty nine (98%) students reported it was helpful to receive a completed rubric after their EBM assignment was graded. Thirty nine (78%) felt the grade they received (5 point scale) was a fair assessment of their completed assignment. The students rated the written feedback they received as: excellent (30%); very good (38%); good (18%), fair (12%), poor (2%)). Forty five (88%) reviewed the rubric before completing their assignment. All 5 students who did not review the rubric before completing their assignment reported the grade they received was a fair assessment and all reported that the written feedback they received was positive. In five (6%) of the 79 submitted assignments, students did not correctly apply the study results to answer their clinical case / question. Overall, in applying the rubric to grade the EBM assignments, 50 (63%) assignments were evaluated at an "Above Expectations" level (4 or 5 points), 21 (27%) at "Meets Expectations" (3 points) and 8 (10%) at "Below Expectations" (2 points), no assignment received a grade of 1 point.

**Potential Impact/Lessons Learned:** Most students report that it was helpful to receive a completed rubric for their assignment. Many students felt the grade they received was a fair assessment and most rated the feedback they received as positive. Overall, the implementation of the grading rubric appears to have been successful.

**References:**

1) Wald DA, Roepke C, Fane K, Barrett J. Introducing Evidence Based Medicine into an Emergency Medicine Clerkship. Acad Emerg Med. 2018;25s291.

**Evidence-Based Medical Education through an Integrative and Longitudinal Pharmacotherapy Curriculum**

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**Idea/Problem Statement:** Evidence based pharmacotherapy re-enforces important concepts of pathophysiology, pharmacology and clinical reasoning in pre-clerkship curriculum.

**Need/Rationale:** Evidence-based pharmacotherapy exercises that address clinical reasoning develop the skills needed to master patient management concepts assessed in 20-80% of the content of NBME examinations [1-3]. Importantly, these principles of patient-specific management translate into the clinical setting, where clinicians often consult resources and guidelines to optimize treatment strategies or to meet standards of best practice. Our goal was to integrate evidence based pharmacotherapy exercises in an organ systems based curriculum. We developed an interprofessional, longitudinal series of Pharmacotherapy Integration and Longitudinal Learning Sessions (PILLS) in collaboration with medical students and licensed pharmacists. The curriculum outcomes are described at levels of learner reaction, learning, and behavior.

**Methods:** Our longitudinal model was piloted in two courses (one each in Year 1 and 2). The first-year medical students (n=177) participated in a semi-guided, problem-based exercise to work through a clinical case. This exercise consisted of: 1) generate a summary statement; 2) provide a differential diagnosis; 3) select evidence-based treatment option(s). The exercise was scheduled after relevant content had been covered in lectures. The exercise used an online, dynamic, question-based modality to evaluate patient-specific characteristics and select optimal pharmacotherapy. Second-year medical students participated in a similar, self-directed (not guided) exercise to determine evidence-based pharmacotherapy for two complex clinical cases. Primary outcomes include student reported comfort navigating evidence-based resources, ability to appropriately source and evaluate evidence-based materials, and accuracy of final application for management plans. Free-text and Likert-scale responses were utilized to capture these outcomes. Subsequently, free-text responses were translated into categorical variables as per a priori definitions.

**Evaluation Plan/Results:** 177 students participated in the PILLS exercises in the Pulmonary (Year 1) and Genitourinary (Year 2) courses. Year 1 student comfort as assessed through eight different domains increased post exercise. There was a significant increase in student-reported comfort with general pharmacology material, with applying pharmacology material to clinical cases, and with accessing and applying published treatment guidelines ($p < 0.05$). Additionally, there was a significant increase in student-reported comfort with accessing and applying evidence-based information sources ($p < 0.01$). In terms of resources utilized, first search engine and most useful resource were captured through free-text responses. The most common resource documented that was first accessed was up to date (45.5%), which was also identified as the most useful source (63.6%). Of the most useful resources documented, 80.6% were identified as scientifically evidence-based. Most students (94.4%) correctly identified the first step of patient management, and further, a large majority (89.9%) of students ultimately identified either an allergy or clinical nuance about the patient case that required adjusting therapy according to evidence-based resources.

**Potential Impact/Lessons Learned:** PILLS is feasible to implement in organ systems courses, requiring limited faculty resources and allowing practice of evidence-based clinical reasoning while enhancing student appraisal of and confidence with validated resources. We plan to implement similar practice into other integrated courses.

**References:**

1) USMLE. Step 1: Content Outline and Specifications. http://www.usmle.org/step-1/#content-outlines. Accessed September 15, 2018.

2) USMLE. Step 3: Content Outline and Specifications. http://www.usmle.org/step-3/#outlines. Accessed September 15, 2018.
3) Acharya Y, Rao MR, Arja S. Evidence-based medicine in pre-clinical years: a study of early introduction and usefulness. Journal of advances in medical education & professionalism. 2017;5(3):95.

**Exploring Clerkship Students' Learning Styles to Aid in Design of a Pediatric Discharge Curriculum**

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**Idea/Problem Statement:** Transitions of care is a required element of medical student education. It is unclear how to design a pediatric clerkship curriculum on this topic.

**Need/Rationale:** The Liaison Committee on Medical Education requires education related to patient safety and transitions of care (TOC) for medical students. However, there are no published pediatric clerkship curricula that incorporate safe TOC, medication safety and hospital discharge education. As the "millennial generation" favors social media platforms and other technology-based learning modalities, educators must consider using these instructional strategies to promote efficient, accessible, and effective teaching and learning. The aim of this study was to conduct a needs assessment of medical students' learning preferences related both to a pediatric-focused hospital discharge curriculum and the use of technology-based instructional modalities preferred by students in an already packed, busy clerkship. Data from this study will aid in instructional design of our clerkship curriculum with the intent to evaluate the feasibility via a pilot study as our next steps.

**Methods:** This is a qualitative study using focus group methodology and a phenomenological approach to data analysis. The focus group was facilitated by an experienced focus group study leader and comprised of 8 third year medical students rotating at Children's Hospital Los Angeles. A detailed moderator packet and instructional guide was developed, and the moderators participated in a training session led by the investigative team. After the creation of interview questions, a mock focus group was formed and facilitated by the principal investigator prior to the study. Sample size was determined based on likelihood of achieving thematic saturation. Participants were recruited via email and participation was voluntary. Inclusion criteria for recruitment consisted of students in good standing with the medical school and recently completed their pediatric clerkship. Non-participants either declined to participate, had schedule conflicts, or were not needed due to reaching the target sample size. Three questions were audio-taped and transcribed. In addition, verbatim and contextual notes were scribed by an assistant moderator for the remaining 13 questions. Three investigators are independently coding the data and using a research analysis software program for identification of themes. This study was approved by our institution's IRB.

**Evaluation Plan/Results:** Preliminary analysis indicates that participants recognize the importance of and are interested in a pediatric TOC and hospital discharge curriculum, particularly one that incorporates evidence-based medicine. Participants prefer "hands-on" instructional strategies, such as observing or participating in a "process of patients leaving the hospital." Regarding general study habits, most participants indicated that they like to study at home, prefer self-study compared to groups learning, and are comfortable using technology. Regarding various instructional strategies used during pediatric clerkships, most participants felt OSCE's were not helpful in certain environments and half disliked reflection exercises. Most participants stated that in-person workshops, case-based learning, and procedure training were favored. Almost all participants indicated that they do not like the use of podcasts for delivery of educational material. Final data analysis is ongoing and is expected to be completed by November 2018.

**Potential Impact/Lessons Learned:** Medical students identify TOC curricula as important and prefer active learning strategies during pediatric clerkships. Technology-based modalities may offer benefits in terms of efficiency and accessibility, but these modalities were not clearly favored by participants.

**References:**

1) Boysen, D. G. (2010). Changing the Culture in Medical Education To Teach Patient Safety. Health Affairs, 29(9), 1600-1604.

2) Harlan, G. (2010). Improving transitions of care at hospital discharge—implications for pediatric hospitalist and primary care providers. Journal for Healthcare Quality, 1945-1474.
3) Roberts, D. (2012). Twelve tips for facilitating Millennials' learning. Medical Teacher, 274-278.

**Exploring How Our Environments Can Promote Resilience and Flourishing**

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**Workshop Description:** Participants will explore the ways our work environments (office, classroom or clinical) can help us build resilience and flourish. What is going right on our best days and what is missing on our toughest days. We will use the lens of PERMA (Positive emotions, Engagement, Relationships, Meaning and Achievement) to help us examine positive factors and barriers in our work environments. Each participant will complete a needs assessment and together we will begin the development of action plans.

**Rationale:** Burnout is prevalent among learners and all levels of health care practitioners and adversely affects both learner wellbeing and patient care. Acknowledging this, academic health centers have developed wellness programs and curricula for learners and for faculty, while attempting to improve the learning/work environment. Despite these efforts stress and burnout appears to be on the rise. One hypothesis for this paradoxical effect is that wellness efforts often seem reactive, sub optimally integrated into the environment, and for the most part focused on 'respite' activities. Moreover, such programs often seem to lack an explicitly articulated theoretical framework to guide them. Whether these activities promote (or hinder) resilience and 'flourishing', as opposed to purely providing a venue for people to decompress and compartmentalize their lives, is deserving of exploration.

**Intended Participants:** Educators and educational administrators involved in curriculum development, admissions and student affairs who are interested in wellbeing and professional development of faculty and students

**Learner outcome objectives:** At the end of this workshop participants will be better able to:
1. Identify positive factors and barriers in the work environment in relation to our wellbeing
2. Use the lens of PERMA (Positive emotions, Engagement, Relationships, Meaning and Achievement) to examine our own wellbeing, and
3. Begin to make a plan to enhance resilience and flourishing for ourselves, our learners and our workplace

**Methods:** This workshop will use a variety of methods including brief formal presentations, small and large group activities with debriefing, and paired-work utilizing a worksheet.

**Activity Timeline:**
Timeline (minutes): Activity
01-20: Small group activity: Participants will generate lists of barriers and facilitators for their own wellbeing. A large group list will then be developed. (objective 1)
21-40: Didactic and large group discussion to linking the barriers and facilitators above to a) the workplace arenas noted by Maslach (workload, control, reward, community, fairness, values), and to PERMA (Positive emotions, Engagement, Relationships, Meaning and Achievement) from Seligman. (objective 2)
41-55: A handout and brief discussion of concepts and tools to help yourself or learners enhance wellbeing. From the 21st century mindset concepts will include mindfulness, growth mindset, self-compassion, vulnerability, grit and resilience. We will also provide links to tools useful in self-discovery and enhancing elements of wellbeing.
56-75: Participants will work in pairs, using a worksheet to begin to develop an action plan to enhance wellbeing for self, others, with one idea for how their organization needs to "change" to better promote wellbeing. (objective 3)
76-90: Wrap up, take home ideas and session assessment.

**Your Student Posted What on Twitter?!**
**Defining and Teaching eProfessionalism in the Digital Era**

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**Workshop Description:** Do you remember a time before the Internet? Future leaders in medicine do not! Through eProfessionalism training, medical educators can positively influence students' online interactions, and prepare them for successful careers in medicine. In this session, attendees will understand what eProfessionalism is and the current challenges to its effective implementation, improve their digital identities, and work through several, recent eProfessionalism real-world cases, e.g., Facebook, Twitter.

**Rationale:** Medicine is experiencing dramatic development due to the digital revolution. Some of these changes have created new challenges that medical educators can address through trainings and professional development. A group of medical educators at Keck School of Medicine of USC are currently developing and piloting new curricula in eProfessionalism. This session provides motivations for their work and lessons that attendees can implement at their home institutions.

**Learner Outcome Objectives:** By the end of this training, attendees should be able to:
1. Define eProfessionalism and the qualities of a medical professional
2. Apply workshop concepts to improve and manage their own online identities
3. Use workshop as a framework to develop eProfessionalism curricula at their home institution

**Intended Participants:** Medical faculty, staff, residents, and students

**Methods and Activity Timeline:**

0 – 5 minutes: Introduction and overview of Keck MedEd eProfessionalism teaching activities
5 – 10 minutes: Notepad brainstorm:
- 3 post-it wall notepads, 3 scribes, large group discussion
  - Notepad 1: Why do you use social media?
  - Notepad 2: What are your goals?
  - Notepad 3: Who is your audience?
- Debrief: Understanding goals and usage will help guide strategy in the next exercise

15 – 30 minutes: Digital checkup (think-pair-share; then group debrief)
- Individual work: Attendee Google's him/herself and reviews his/her public and private online presence. Attendees will identify areas of their online presence where updates are needed.
- Pairs: Discuss findings from exercise and share recommendations for improving online presence.
- Class Debrief: Discuss activity. Emphasize the need for strategy as well as resources to support students and staff in the creation of a professional online identity.
- Handout: SWOT Analysis Worksheet

30 – 45 minutes: Notepad brainstorm – Qualities of a medical professional
- 3 notepads, 3 scribes, small groups, class debrief
  - Notepad 1: Professional qualities of a clinician (patient care)
  - Notepad 2: Professional qualities of a medical educator
  - Notepad 3: Professional qualities of a medical student
- Class Debrief: One member from each group shares work and rationale
- Handout: Keck Professionalism Policy

45 – 50 minutes: Break Provide eProfessionalism definition on slide following exercise
50 – 80 minutes: Facilitated Case Study Analysis
- Break into 3 groups, 3 cases (each group will analyze two cases, 10 minutes each), class debrief (10 minutes)
  - Case 1: Physician's personal, public Instagram account
  - Case 2: Resident complaining on Twitter
  - Case 3: Overseas medical volunteer service, Facebook post (with patient)

Class Debrief: 10-minute discussion

80 – 90 minutes: Closing with Commitment to Act

**Take Home Tools:** Handouts

Keck Professionalism Policy

AMA Policy: Professionalism in the Use of Social Media and the Internet

SWOT Analysis Worksheet Resource page (e.g., suggested readings, PwC Personal Brand Workbook, etc)

**Using Competency-Based Scoring to Promote Student Growth**

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**Idea/Problem Statement:** A competency-based clinical skills program shifts students' focus to learning outcomes instead of achievement scores and promotes reflection.

**Need/Rationale:** Wayne State University School of Medicine (WSUSOM) is the largest, single-campus medical school in the United States. Providing exposure to urban, clinical care, coupled with small team learning and support to class sizes of 290-300 students presents challenges. A Year 1 segment review identified the need to develop a longitudinal, competency-based clinical skills curriculum that spanned the first two years of medical school. The curriculum needed to align with the learning objectives defined by the AAMC Recommendations for Clinical Skills Curricula in Undergraduate Medical Education (2008). The program provides students with opportunities for repeated practice with formative feedback, and real-time intervention and enrichment opportunities. The goal of the program is to help students develop clinical competence prior to entering clerkship.

**Methods:** A competency-based clinical skills curriculum will be implemented over the course of one academic year with Year 1 medical students. A class of 300 students will engage in ten, 90-minute sessions to interact with a returning patient whose chief complaint changes to reflect the body system studied in lectures. With each visit, the patient will experience increased challenges that will affect their health, behavior, and presentation. The innovation lies in the development of performance rubrics and formative feedback systems anchored to the AAMC Recommendations for Clinical Skills Curricula in Undergraduate Medical Education (2008). The AAMC objectives were grouped into six domains: Professionalism, Communication, History-Taking, Physical Examination, Oral Presentation, and Note-Writing. Each domain was divided into competencies and four levels of achievement, based on qualitative descriptors instead of numerical scores. The scoring rubric is designed to show progress in 77 competencies, along a continuum ranging from Undesirable (not competent), to Entry, Developing, and Aspirational (highly competent). Verbal and written feedback is provided by a standardized patient, a peer, and a Year 4 medical student during each session. Students also have the opportunity to watch videos of their performance to reflect upon their progress. The process of repeated practice, formative feedback, and reflection helps build self-regulated medical learners.

**Evaluation Plan/Results:** During each of the ten sessions, students are provided with feedback on 77 competencies. Students making adequate progress are offered self-selected enrichment opportunities after each session. Students struggling to make adequate progress are required to participate in enrichment sessions. Enrichment opportunities include faculty-led workshops, practice on physical exam maneuvers with a standardized patient, and one-on-one meetings with faculty, determined by individual student need. Mid-term and end-of-year summative evaluations are used to document student growth and determine promotion.

**Potential Impact/Lessons Learned:** Repeated practice with regular, formative feedback based on qualitative descriptors instead of numerical scores shifts students focus towards learning outcomes instead of achievement scores, promotes reflection, and helps builds self-regulated medical learners.

**References:**

1) Association of American Medical Colleges. Recommendations for Clinical Skills Curricula for Undergraduate Medical Education. 2008
2) Stegers-Jager KM, Cohen-Schotanus J, Themmen, APN. The Four-Tier Continuum of Academic and Behavioral Support (4T-CABS) Model: An Integrated Model for Medical Student Success. Academic Medicine, 92(11): 1525-1530, Nov 2017 Retrieved from https://insights.ovid.com

**Student Learning Motivation Changes After Implementing Computer Based Testing (CBT)**

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**Idea/Problem Statement:** Study of learning motivation changes and clinical skills acquisition in undergraduate pediatric rotation students following implementation of CBT

**Need/Rationale:** One of the major goals regarding student learning is to achieve the best of clinical competence during rotations in clinical training. Assessment is an essential part of medical education; it provides evidence of how well student learning objectives are being achieved. One of the ways to enhance learning is to address the method of assessment, because students clearly concentrate on what is going to be examined for better grade achievement and self satisfaction. Computer based testing (CBT) has the capability to test students regarding their clinical competence by using high resolution images, radiology films, drawings, multimedia and patient simulation scenarios. The above parameters of clinical competence are not well explored by paper testing. In our study, CBT was implemented in all pediatric rotation assessments, for the purpose of enhancing student motivation for clinical encounters, in addition to other benefits of CBT such as easiness to perform and rapid feedback.

**Methods:** In Faculty of Medicine, Beirut Arab University, over a period of one year, a total of 85 undergraduate students passing through pediatric rotation (in medicine year 4) were subjected to evaluation of their motivation for learning, especially acquisition of clinical skills. Evaluation of student learning motivation as an outcome to introducing CBT was done by more than one method in trial to eliminate confounding variables such as learning environment and curricular changes. This was performed while implementing CBT rich in patient images, drawings, radiology films, and patient simulation formats as an alternative to paper testing in all continuous and final tests in this year. First, there was direct teacher observation of clinical bedside attendance and student attitude to clinical settings, taking into consideration previous year clinical attendance in the same rotation as control (before starting CBT). Second, clinical case presentation skills were assessed during the rotation using previous year as control. Third, we conducted student survey concerning CBT as compared to paper testing, and requested student response to parameters: is it enhancing knowledge learning, is it enhancing clinical skills learning, is it helping in achieving educational objectives, and can CBT be a method of teaching by itself. Survey results were categorized into four point scale: strongly agree, agree, disagree, and strongly disagree

**Evaluation Plan/Results:** Direct teacher observation of clinical bedside attendance was measured by interview of teachers. Compared with previous year in the same rotation before using CBT, no significant change in student attendance and keenness to learn was observed by teaching staff. Second outcome variable was observing clinical case presentation skills by students in the program phase (1 year) in comparison with previous year (pre-implementation period). Case presentations during the year of CBT implementation were done on weekly basis with two case presentations per student in rotation. Presentations were found to be done more professionally, with plenty of higher thinking analysis as reported by teaching staff. The third outcome variable was a student survey concerning previously addressed questions. Question 1: is it enhancing knowledge learning. Response was 12% strongly agree, 33% agree, 35% disagree, and 20% strongly disagree. Question 2: is it enhancing clinical skills learning. Response: 32% strongly agree, 51% agree, 10% disagree, and 7% strongly disagree. Question 3: is it helping in achieving educational objectives. Response: 24% strongly agree, 49% agree, 25% disagree, and 2% strongly disagree. Question 4 "was a high yield": can CBT be a method of teaching by itself. Response: 42% strongly agree, 46% agree, 9% disagree, and 3% strongly disagree. Previous conclusions are strongly suggestive of the potential for enhancing student clinical session learning through implementing CBT

**Potential Impact/Lessons Learned:** Enhancing undergraduate student motivation for learning especially clinical skills and reasoning ability is expected to occur after implementing CBT rich in patient

pictures and simulation formats. Limitation for widespread implementation of CBT in other institutions should be considered as well

**References:**


1) Douglass, J. “The Learning Outcomes Race: the Value of Self- Reported Gains in Large Research Universities”. Higher Education 2012; 64: 317-335
2) Csapo B, Ainley J, Bennett RE, Latour T, Law N. Technological issues for computer-based assessment Griffin P, McGaw B, Care E (eds). Assessment and teaching of 21st century skills. Netherlands: Springer; 2012. pp. 143
3) Thelwall M. Computer-based assessment: A versatile educational tool. Comput Educ 2000;34:37-49

**The CAT – A Step Closer to Assessing Core EPAs**

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**Theme area:** 1) Type of assessment data used for entrustment decisions; 2) who is making them; and 3) the process of incorporating core EPAs into a workplace-based assessment tool

**EPAs: 1, 2, 3, 5, 6, 7**

**Description of project:** Both learners and preceptors (faculty and residents) have expressed the desire for more objective, precise, consistent and standardized assessments (and feedback) across different settings through the use of specific behavioral descriptors. In order to meet their needs and to move toward a competency-based assessment model, an interdisciplinary team of KSOM faculty developed the Clinical Assessment Tool (CAT) in 2015 as a workplace-based assessment (WPBA) tool of learner performance in core-clerkships. All preceptors now use the CAT to assess the clinical, interpersonal and communication skills as well as professional behaviors of their learners. The development team included three medical education researchers and faculty from family medicine, internal medicine, surgery, obstetrics and gynecology, pediatrics, psychiatry, and neurology. This collaborative effort produced a valid assessment instrument through the use of standardized descriptors of common clinical behaviors across all settings. (1, 2) Through a modified Delphi process, representatives from all clerkships contributed to the language used in the descriptors to ensure understandability by preceptors across disciplines and settings. In the spring of 2016, the committee constructed a prototype consisting of 11 items with 9 levels of performance for pilot-testing. Quantitative and qualitative feedback from the pilot-testing resulted in modification of the tool. The number of items was increased from 11 to 14, and the number of performance levels was reduced from 9 to 7. For each item, preceptors can choose from a range of narrative anchors describing observable behaviors, rather than arbitrary Likert-type responses (such as numerical ratings or ranking statements) that tend to distract raters from making objective assessments. (3) The specificity of these narrative anchors promotes more objective and consistent assessments of learners' skills across multiple raters, whose assessments ultimately contribute to entrustment decisions. (4)

Furthermore, in an effort to make the assessment process and instrument transparent to both preceptors and learners, we have incorporated the same CAT content into the mid-clerkship feedback activity. Students are required to assess themselves using the CAT descriptors prior to meeting with their preceptors (faculty or resident) for feedback. The behaviors described in the narrative anchors facilitate more explicit feedback by preceptors and help guide students in their development relative to the ACGME competencies. (5)

The CAT is being fully implemented in 2016-2017. As part of ongoing validity assurance and quality control, the development team will be reviewing the performance of the instrument in every clerkship rotation during the implementation year. At the time of this report, three clerkships have completed two full rotations' worth of assessment. Feedback received from rotation 1 preceptors has led to a modification aimed at improving the visual clarity of the tool. Data from rotation 2 will be used to assess the effect of this modification.

The purpose of this presentation is to share the step-by-step development of a WPBA tool which can be used by preceptors in any clinical setting to provide valid data for entrustment decisions. We will discuss some of the potential roadblocks that could have interfered with the success of this initiative. Since the design of the tool has evolved from its inception, we will share the different iterations of the tool (prototype, CAT 1.1 and CAT 2.1) and the underlying rationale for the modifications.

**Lessons Learned:**

1. Consider the platform on which the assessment tool will be hosted and incorporate its constraints and limitations early in the developmental phase of the tool.

2. Solicit feedback from as many users as possible and pilot-test every iteration of the tool design.
3. Design an effective and feasible rater training protocol to ensure standardization and accuracy.

**References:**


1) General Medical Council. Workplace based assessment: a guide for implementation. April 2010. http://www.gmc-uk.org/Workplace_Based_Assessment___A_guide_for_implementation_0410.pdf_48905168.pdf
2) Wass V, Van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. Lancet 2001; 357: 945-49.
3) Bartlett KW, Whicker SA, Bookman J, et al. Milestone-based assessments are superior to likert-type assessments in illustrating trainee progression. J Grad Med Educ. 2015 Mar; 7: 75-80.
4) The Association of American Medical Colleges. Core Entrustable Professional Activities for Entering Residency: Curriculum Developer's Guide. Washington DC: The Association of American Medical Colleges, 2014..
5) Pangaro LN. Investing in descriptive evaluation: a vision for the future of assessment. Medical Teacher, 2000; 22(5): 478-481.

**Formative Assessment and Coaching for Three Core EPAs in an Internal Medicine Sub-internship**

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**Idea/Problem Statement:** Learners in the Internal Medicine sub-internship will be assessed and coached by faculty on four Core Entrustable Professional Activities (EPAs).

**Need/Rationale:** Graduate medical education (GME) programs use EPAs as a basis for competency-based assessment (1). Undergraduate medical education (UME) programs are beginning to use them to align with GME outcomes (2). Formative assessment in the EPAs coupled with coaching can help prepare our learners to achieve the EPAs prior to graduation. The goal of coaching is to "guide learners to develop and grow an internal locus of control and master new skillsets". The four EPAs chosen are from the list of the Final 13 Core EPAS for entering residency(3). They are: 1. Gather a history and perform a physical examination; 2. Prioritize a differential diagnosis following a clinical encounter; 3. Provide an oral presentation of a clinical encounter; 4. Give or receive a patient handover to transition care responsibility. Proving a safe environment for learners to implement these EPAs, would be a step towards increasing competence and confidence of the learners, enhancing patient safety, and increasing residency program directors' confidence in their new interns.

**Methods:** The Subinternship (Sub-I) Objective Structured Clinical Examination (OSCE) will consist of 3 stations. Both the University of Southern California, Keck School of Medicine and Loma Linda University School of Medicine will be implementing this OSCE. At the first station, the learners will take a history, perform the physical examination and educate and counsel the patient. This will be rated by the standardized patients. On completion of this station, the learners will move to Station 2, where they will input the history and physical examination into the computer. During this time, they will receive a call from a "standardized" nurse about a cross coverage patient. This interaction will be rated by the nurse. At Station 3, they will present the case to an attending physician, including their differential diagnoses and their care plan. The attending will use a checklist to rate them and provide coaching and feedback. The attendings will have a dialogue with the learners to explore their clinical reasoning. After this, learners will then "hand-off" the patient using the IPASS format and learners will be rated on this as well.

**Evaluation Plan/Results:** The learners will be rated by the standardized patient and the standardized nurse on the history and physical examination and the cross-coverage phone call. They will receive extensive feedback and coaching from the faculty in Station 3 on three of the aforementioned EPAs – oral presentation skills, clinical reasoning, and hand-off. Faculty will evaluate the learners' progress toward achievement of graduation competencies. In addition, we will be having focus group discussions with the learners on the usefulness of the OSCE in subsequent rotations and a follow-up survey to be sent next year when they are in their residency.

**Potential Impact/Lessons Learned:** Core EPAs are important for entrustment decisions. Assessment of learner's progress in achievement of these EPAs through direct faculty-student interaction in a standardized setting can provide information for determining readiness for graduation.

**References:**

1) ten Cate O, Snell L, Carraccio C. Medical competence: the interplay between individual ability and the health care environment. Med Teach. 2010. 32(8): 669-675.
2) Chen HC, Skoukje van den Broek WE, ten Cate O. The case for use of Entrustable Professional Activities in undergraduate medical education. Acad. Med. 2015: 90 (4): 431-436.
3) Englander R, Flynn T, Call S, Carraccio C, Cleary L, Fulton TB, Garrity MJ, Lieberman SA, Lindeman B, Lypson ML, Minter RM, Rosenfield J, Thomas J, Wilson MC, Aschenbrener CA. Toward defining the foundation of the MD Degree: Core Entrustable Professional Activities for Entering Residency.

**A Mixed Methods Study of Residents' Communication Skills as Rated by Standardized Patients and Actual Patients**

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**Idea/Problem Statement:** To what extent are standardized (SPs) and actual patients' (APs) assessments of residents' communication skills longitudinally congruent and why?

**Need/Rationale:** High quality physician-patient communication indicates excellence in healthcare. (1) SPs are used to prepare learners for real-world patient encounters. Research indicates that SP and AP ratings provided different information about physicians' communication style (2) Despite calls for new directions in communication research to better understand physician-patient interactions (3), few studies have shed light on why differences exist. This is the first study to do so.

**Methods:** A sequential mixed methods design was used to study patients' assessments of 28 PGY-3 residents' communication skills. Five items on the Abbreviated Communication Rating Scale (ACRS), part of the OSCE administered in PGY-1, were used. The Wilcoxon Signed Ranks Test for matched pairs was conducted in SPSS to determine congruence of assessments based on the ranked order magnitude of the difference in ratings. Focus groups were conducted with residents to understand potential differences in physician-patient interactions over time and the context of their communication practices. Group interviews were audio-taped, transcribed, and coded for themes in Dedoose.

**Evaluation Plan/Results:** A significant difference was found on one ACRS item: summarized and/or clarified information ($Z = -2.25$, $p = 0.02$ [two-tailed]). Focus groups indicate differences between APs and SPs influenced residents' interactions with each group and contextual limitations (e.g., patient load and limited time) influenced the quality of their communication overall.

**Potential Impact/Lessons Learned:** Residents adapted their approach to patient communication depending on context.

**References:**

1) Matusitz J, Spear J. Effective doctor-patient communication: An updated examination. Soc. Work Pub Hlth. 2014; 29(3) 252-266.
2) Fiscella K, Franks P, Srinivasan M, Kravitz RL, Epstein R. Ratings of physician communication by actual and standardized patients. Ann Fam Med. 2007 Mar-Apr; 5:151-8.
3) Bensing J, van Dulmen S, Tates K. Communication in context: new directions in communication research. Pat Educ Couns. 2003, 50: 27–32.

**Student Self-Assessment, Faculty Feedback, and Clinical Skills Performance: How Are They Related?**

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**Idea/Problem Statement:** Does congruence between student self-assessment and faculty feedback predict and correlate with student's clinical performance?

**Need/Rationale:** Reflection-on-action is an important skill when learners evaluate their behavior after completing an experiential activity (1). Studies have shown that learners may be unaware of their strengths and weaknesses (2); however, a combination of feedback from faculty and self-assessment have improved medical student learning from video review (3, 4, 5). Congruence between faculty and learner assessments and their relationship to student performance has not yet been studied with sufficient rigor (6). Best practices for guided reflection remain underdeveloped in the clinical context. We address this gap by examining the alignment between faculty and third year medical students' assessments of reflective capacity on video reviews of clinical performance, and the relationship of this congruence with students' OSCE performance scores.

**Methods:** 84 students third-year medical students were asked to partner with 27 senior faculty member to engage in reflection on videos of their OSCE exam. Students and faculty members watched the videos together and filled out a worksheet that asked both parties to reflect on what went well, what could be improved in the student's performance, and a brief growth plan in the video along several measures. Following the independent reflections, students and faculty compared their reflections, and faculty gave each student a 1-5 score on the congruence of the students' self-assessment with their own assessment.

**Evaluation Plan/Results:** In a linear regression analysis on the OSCE and Reflection Congruence Average (RCA) z-scores, RCA scores predicted a small but significant portion of OSCE outcomes $b = .308$, $t(82) = 2.50$, $p < .05$; RCA scores explained a small but non-trivial portion of the variance, with $R2 = .071$, $F(1, 82) = 6.253$, $p < .05$. When the regression was reversed to test bidirectionality of the effect, $b = .230$, $t(82) = 2.501$, $p < .05$, with $R2 = .071$, $F(1, 82) = 6.253$, $p < .05$. This indicates that there is a positive linear relationship between scores. A bivariate Pearson correlation was also run to test the degree of correlation between the OSCE and RCA scores. In this test, the two variables were strongly correlated with $r(82) = .266$, $p < .05$.

**Potential Impact/Lessons Learned:** Findings indicate a small but significant relationship between faculty ratings of student reflective ability and their score on the standardized clinical performance exam. Future research is necessary to examine how this phenomenon can be used to improve student outcomes on OSCE-style tests.

**References:**

1) Schon D. The Reflective Practitioner: How Professionals Think in Action. New York, NY: Basic Books; 1983.
2) Kruger J, Dunning D. Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. J Pers Soc Psychol. 1999;77(6):1121-34.
3) Hammoud MM, Morgan HK, Edwards ME, Lyon JA, White C. Is video review of patient encounters an effective tool for medical student learning? A review of the literature. Adv Med Educ Pract. 2012;3:19-30.
4) Hawkins SC, Osborne A, Schofield SJ, Pournaras DJ, Chester JF. Improving the accuracy of self-assessment of practical clinical skills using video feedback--the importance of including benchmarks. Med Teach. 2012;34(4):279-84.
5) Carr SE, Johnson PH. Does self reflection and insight correlate with academic performance in medical students?. BMC Med Educ. 2013;13:113.
6) Blanch-Hartigan D. Medical students' self-assessment of performance: results from three meta-analyses. Patient Educ Couns. 2011;84(1):3-9.

**Twelve Years of Conducting a Hospital-wide Entry-level MSCE – What We have Learned**

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**Idea/Problem Statement:** Entering skills impacts transition to residency and Adventist Health-White Memorial is presenting the data on those skills from a 12-year history of administering a entry-level MSCE (multi-station clinical examination.

**Rationale:** Successful transition to residency is based on character, skill preparation and the quality of the environment (1). Knowledge about the skills residents bring to residency could assist in planning orientation and other early training session, especially when multi-year data is utilized. Further, residency programs need to certify residents early in training to be able see patients on their own. To accomplish this requires expertise, faculty time and residency resources. Many individual programs lack expertise. Combining resources to produce hospital-wide multi-station clinical examinations (MSCE) to assess entry-level performance in relation to ACGME competencies may be a partial solution for many academic health centers since MSCE assessment has been shown to be reliable (2,3).

**Methods:** Adventist Health - White Memorial began conducting the MSCE each year during Orientation in 2007 (12 years). Resident being programs in Internal Medicine, Family Medicine, Obstetrics/Gynecology, Pediatrics and Podiatry have been assessed. The emphasis for this exam continuum is on tracking resident progress, and on using the data for program improvement. Scores were computed by station as well as areas of Competence (Professionalism, Communication Skills, Medical history, Psychosocial history/risk assessment, Physical Exam, Problem Solving, Patient Education). The assessment of individual resident performance is part of each program's early assessment as part of competency-based assessment.

**Results:** Data across the 12 years will be reported across each areas of competence and across the stations included in the examination.

**Potential Impact and Lessons Learned:** Other program nationally can learn from our data and from our lessons learned. Many things have gone very well: 1) Program Directors working well together to assist individual residents and enhance training for programs as indicated by results; 2) Consistent administrative support; 3) Administration of all tests very smooth; 4) Faculty willing to observe and provide feedback; 5) Residents cooperative in completing all tasks; and 6) Most residents have performed well. There have also been challenges and lessons learned: 1) Developing activities early in residency to help those whose skills were low is time consuming and continues to be inconsistent; and 2) For those with overall low performance individual mentoring across time has worked well for most, but the mid-second year MSCE has demonstrated that a few residents continue to struggle with some of the "basic" skills.

**References:**

1) Colbert-Getz JM. Baumann S, Shaffer K, et. Al. What's in a transition? An integrative perspective on transitions in medical education. Teaching and Learning in Medicine: An International Journal. 2016;28(4):347-352.
2) Wallenstein J. Heron S. Santen S. Shayne P. Ander D. A core competency-based objective structured clinical examination (OSCE) can predict future resident performance. Academic Emergency Medicine. 17 Suppl 2:S67-71, 2010 Oct.
3) Phillips D; Pean CA; Allen K; Zuckerman J; Egol K. Using Objective Structured Clinical Examinations to Assess Intern Orthopaedic Physical Examination Skills: A Multimodal Didactic Comparison. Journal of Surgical Education. 74(3):513-518, 2017 May - Jun.

**Low-Cost Phantoms to Assess Learner Performance for Ultrasound Guided Peripheral Venous Access**

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**Idea/Problem Statement:** Phantoms that are used to teach ultrasound (US) guided peripheral access are important to assess learner performance, yet they are cost prohibitive.

**Need/Rationale:** Ultrasound (US) guided peripheral venous access is a common procedure that reduces the use of central lines and their complications such as pneumothorax and arterial puncture (1). One barrier to wider adoption of the technique is provider comfort which increases via training on phantoms. Phantoms allow instructors to train clinicians and assess their learner performance. Despite the commercial availability of procedural training phantoms, their widespread availability is limited due to their cost. Thus, many institutions have described methods of developing low-cost phantoms, but many of these models lack fidelity and have suboptimal US image quality/echogenicity (2). There is also a lack of objective comparisons of these do-it-yourself solutions and commercially available phantoms. This study seeks to provide an approach for comparison and uses said approach to assess our low-cost solution to show that it can be used to assess learner performance like an expensive commercial phantom.

**Methods:** Ballistics gel (Clear Ballistics - Smith, Arkansas), dye, and flour were heated and mixed in a metal container for 2 hours. Once melted, the liquid gel was poured into a 3D printed nylon mold with steel rods placed to simulate blood vessels. Then the mold was placed in an oven for 30 minutes at 300°F to allow time for bubbles to clear. After cooling, the metal rods were removed from the phantom leaving the simulated blood vessels behind which were melted shut at both ends and injected with water. Five experts who perform/teach ultrasound guided peripheral access were asked to target two veins in Block A (our model) and Block B (commercial model) and then fill out an assessment form. Five categories important for assessing learner performance were used for comparison: US image realism, US needle visualization, vein compression, haptic feedback, and vein depth. The small sample size in this case is validated by a mathematical model that shows 5 experts in a field will capture 80% of the data that is available about a model (3).

**Evaluation Plan/Results:** The data suggests that experts find no difference between the Block A and Block B in all five categories since the average rating for US needle visualization, vein compression, haptic feedback we're not statistically different (3.6, 3.2, 3.0) and a two-tailed t-test yielded p-value=0.374 and 0.704 ($\alpha$=0.05) for US image realism and vein depth respectively. Furthermore, the data also suggests that 80% of the experts prefer Block A over Block B for training. In terms of cost, Block A is $7.90, with negligible cost to re-melt the phantom over many years, and the commercial model is $628. The results indicate that the main difference between the two models is in cost. In terms of factors used to assess learner performance, there is no difference in the two models suggesting that Block A can be as effective in assessing learner performance as the Block B.

**Potential Impact/Lessons Learned:** This high-fidelity phantom can allow institutions to save thousands of dollars on commercial phantoms and readily provide instructors around the world a platform to assess learner performance. In turn, more clinicians and learners can be trained in US guided peripheral venous access.

**References:**

1) Soffler, Morgan I, et al. “Central Venous Catheterization Training: Current Perspectives on the Role of Simulation.” Advances in Medical Education and Practice, Volume 9, 2018, pp. 395–403.
2) Shah, Aalap. “A Low-Cost, Reusable, Ballistic Gelatin Ultrasound Phantom for Simulation of Glenohumeral Intraarticular Injections.” AEM Education and Training, vol. 2, no. 2, 2018, pp. 169–173.

3) Nielsen, Jakob, and Thomas K. Landauer. “A Mathematical Model of the Finding of Usability Problems.” Proceedings of the SIGCHI Conference on Human Factors in Computing Systems - CHI '93, vol. 9, Apr. 1993, pp. 206–213.

**Exploring Innovative Uses of Multiple-Choice Questions: Beyond Formal Assessment**

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**Idea/Problem Statement:** Creative usage of multiple-choice questions (MCQs) in medical education can improve student engagement, and assess difficult-to-test concepts.

**Need/Rationale:** MCQs in medical education are generally relegated to the role of formal assessment. While they are extremely effective in this role, they are a more dynamic medium and can be used in other areas as well. Storytelling principles have long been used to engage listeners and humans are well-adapted to remember stories (1, 2). By utilizing these principles, and combining them with principles of good MCQ design, educators can better engage learners and foster an improved learning environment. Additionally, improved explanations of answer choice in MCQs can help make the medium more of a learning tool, rather than simply formal assessment. As medical education moves to an increasingly more active style of learning, it is imperative that we adjust our current conceptions of the tools that we currently utilize, and expand their usage as necessary to adapt to the changing climate.

**Methods:** A workshop can be used to help faculty become acquainted with best item writing practices and begin to convert existing questions first into high-quality items with guidance from the NBME Gold Book. In addition to this conversion, the workshop can help introduce the idea of storytelling as it pertains to MCQs and the techniques used in creating interactive scenarios. First, faculty are shown how to lay out the story that they are trying to tell and list the outcomes they would like to explore. Next, they are shown how to outline the various pathways that the question can take, and how to link between the nodes. Following outline completion, stems are designed around the desired outcomes and placed into the greater story of the scenario. Testing for thoroughness and quality is easily accomplished by pairing up and sharing the stories. Finally, there is an additional step to assess the veracity of the content by content experts.

**Evaluation Plan/Results:** Evaluating the intervention will ultimately be accomplished by implementation in a classroom, assessing for student reception, and overall impact on confidence with the material and change in grades. It is important to assess for more than just the impact on grades as student engagement has been shown to be important in the impact of active-learning strategies (3). This stage of the idea is very open to the future innovations of those who would choose to implement it. While MCQs are well-assessed in the educational field, their usefulness in learning in and of themselves, and their usefulness when applied to storytelling needs to be further researched.

**Potential Impact/Lessons Learned:** When considering the future of active learning curricula, we recognize that passive questioning to assess knowledge retention will not go away, but there is a profound need for more innovative ways to engage learners and verify that they are grasping the concepts needed in order to be successful.

**References:**

1) Wiggins, B. L. et al. ASPECT: A Survey to Assess Student Perspective of Engagement in an Active-Learning Classroom. CBE—Life Sciences Education 16, ar32 (2017).
2) Moreau, K. A., Eady, K., Sikora, L. & Horsley, T. Digital storytelling in health professions education: a systematic review. BMC Medical Education 18, (2018).
3) McBride, G. Storytelling, behavior planning, and language evolution in context. Frontiers in Psychology 5, (2014).

**Can an Oral Exam Uncover Knowledge Deficits and Guide Learning for Pediatric Endocrinology Fellows?**

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**Idea/Problem Statement:** We are developing an oral exam for pediatric endocrinology fellows to help uncover critical knowledge deficits, thereby guiding future learning.

**Need/Rationale:** Pediatric endocrinology fellowship programs in the United States typically utilize only two methods of assessment of fellow physicians, both of which have numerous limitations. The first method is the global ratings form, in which faculty provide subjective assessments via Likert scale with comments on strengths, weaknesses, etc. (1) This assessment is subject to multiple threats to validity including limited direct observations of trainees, rater bias, inaccurate recall, and lack of specific clinical skills or tasks to rate (2). The second method of assessment is the Subspecialty In-Training Examination, which is a four hour, computer-based exam consisting of approximately 150 multiple choice questions (3). This assessment is objective, but also limiting given the primary purpose is to “predict performance on a subsequent certifying exam” per the American Board of Pediatrics (3). This certifying exam frequently assesses knowledge related to rare, atypical, or very challenging clinical scenarios or basic science and molecular biology rather than knowledge of common clinical scenarios. Another limitation of the assessment is the multiple choice format, which can result in cueing, can seem artificial and removed from real situations (2). An oral exam to assess clinical competency objectively would not have many limitations of current assessments and may enhance overall assessment, and thus overall training of pediatric endocrinology fellows throughout the country.

**Methods:** Thirty-four commonly encountered clinical case scenarios in pediatric endocrinology are being developed and peer-reviewed by four senior pediatric endocrinology fellows and three pediatric endocrinology attending physicians. Each question will have an evidence-based, peer-reviewed scoring rubric as well. The exam will be pilot tested prior to administration to fellows throughout the country. At least 20 pediatric endocrinology fellows throughout the country will be recruited to take this oral exam. A faculty member will administer the exam to a fellow individually, once, during the spring of 2019. Total time for administration of the exam is estimated to be 2-3 hours per fellow and will take place in the faculty member’s office. We will use qualitative assessments, such as Likert scale questionnaires with short answers, to determine whether this oral exam uncovers previously unidentified knowledge gaps and provides useful direction and motivation for future learning. These assessments will be administered to both fellows and faculty immediately before and after each case.

**Evaluation Plan/Results:** The oral exam document, along with qualitative assessments, will be sent to participating faculty via email. Faculty will send completed assessments back to us via fax or email. The stakeholders, in our case, would be the faculty administering the exam as they must be sufficiently satisfied with the exam to invest the time needed to administer the exam to fellows on a yearly basis. The faculty will be surveyed at the end of the exam to provide feedback on the quality, feasibility, and usefulness of this exam as a formative feedback tool. The fellows, will also be surveyed with a variety of questions to determine whether the exam provides useful direction and motivation for their future learning, and if so, how they plan to change their study habits specifically. A follow up questionnaire will be administered at the end of the academic year to determine whether the fellows’ study habits were altered as a result of the exam.

**Potential Impact/Lessons Learned:** An oral exam may uncover critical knowledge deficits of fellows, providing useful direction and motivation for future learning. The ultimate goal is to transition easier to unsupervised practice by improving their ability to provide high quality clinical care immediately out of fellowship.

**References:**


1) Schwartz A, editor. 2011. Assessment in Graduate Medical Education: A Primer for Pediatric Program Directors. Chapel Hill, NC: American Board of Pediatrics.
2) Epstein RM. Assessment in medical education. New England Journal of Medicine 2007; 356(4):387-396.
3) The American Board of Pediatrics [Internet]. Chapel Hill, NC; c2009-2018 Subspecialty In-Training Examination (SITE). Available from: https://www.abp.org/content/subspecialty-training-examination-site

**Asynchronous Faculty Evaluation of Core Procedural Skills**

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**Idea/Problem Statement:** The purpose is to compare outcomes of direct faculty vs. asynchronous faculty evaluation of learner competence in the procedural skill of suturing.

**Need/Rationale:** Individual learner competence in core procedural skills are an important goal of medical training. National medical education organizations have identified core procedural skills that medical school graduates should master during training. Increasingly, post-graduate programs are requiring medical graduates to enter internships with competence in basic procedural skills. The Objective Structured Clinical Examination is considered the gold standard for clinical skills evaluation. However, evaluation of individual learner procedural skill competence is consumptive of faculty time, with clinicians identified as the ideal evaluator for procedural skills. Further, administration of the OSCE usually takes place during business hours, and often require faculty to divert time away from patient care activities.

**Methods:** In 2018, suturing skills evaluation stations were embedded into both the Surgery and OB/GYN required clerkship OSCEs. A standardized checklist for suturing evaluation for use in both clerkship OSCEs was collaboratively developed. All learner performances are recorded and evaluated within the skills center learning management system. During the Surgery OSCE, clinician evaluators use the traditional evaluation method of directly observing and evaluating individual students during actual performance of the skill. During the OB/GYN OSCE, one roving faculty member provided learner support, being immediately available to answer any learner questions. Subsequently, in the week following the OSCE, OB/GYN faculty asynchronously reviewed learner videos and evaluated individual learner performance. To assure evaluation equivalency, two faculty members independently evaluated each learner performance. The faculty scores were averaged to determine learner performance scores.

**Evaluation Plan/Results:** During the academic year, results of suturing station results are being tracked to provide feedback on faculty performance. Class average performance scores to date:

| Clerkship | Rotation 1 | Rotation 2 | Rotation 3 | TOTAL |
|---|---|---|---|---|
| Surgery | 93.90% | 97.48% | 97.50% | 96.30% 96.30 |
| OB/GYN | 99.03% | 98.81% | 99.03% | 98.96% 98.96 |

Ongoing data tracking results have been sufficiently comparable to support the decision to complete the academic year utilizing both evaluation modalities. When complete data set is available, at end of academic year, comparison of individual learner performance across clerkship's will be calculated. Additionally, depending on former results, evaluations that will be considered include a retrospective asynchronous learner evaluation of direct observation learners by asynchronous faculty.

**Potential Impact/Lessons Learned:** Asynchronous evaluation of learner competence in procedural skills appear to be a reliable and valid method. The ability to evaluate learners asynchronously, allows faculty to perform this important task in time periods that do not impact direct patient care productivity.

**References:**

1) Daniel B. Jones, M., FACS, Kathleen R. Liscum, M., FACS, Robert D. Acton, M., FACS, Connie C. Schmitz, P., James G. Bittner IV, M., FACS, Jeffrey G. Chipman, M., FACS, . . . Brette Wilson, R., MS. (2017). ACS/ASE Medical Student Simulation-Based Surgical
2) APGO, U. M. E. C.-. (2017). Basic Clinical Skills. Retrieved from https://www.apgo.org/educational-resources/basic-clinical-skills/
3) Brydges, R., Hatala, R., Zendejas, B., Erwin, P. J., & Cook, D. A. (2015). Linking simulation-based educational assessments and patient-related outcomes: a systematic review and meta-analysis. Academic Medicine, 90(2), 246-256. doi:10.1097/ACM.00000000000

**Engaging Medical Students in the Assessment of Pre-Clinical Curricular Experiences and Faculty Teaching: Strategies and Lessons Learned from the Cohort Model**

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**Idea/Problem Statement:** Student evaluations of teaching typically involve a questionnaire at the end of the course. At the Keck School of Medicine, this model of evaluation yielded low quality data.

**Need/Rationale:** Student evaluations of teaching is a traditional method of identifying areas for improvement in curriculum and professional development for educators (Marsh & Roche, 1997). Students' evaluations of course and faculty, however, do not provide quality, actionable feedback when they are faced with a high volume of surveys to complete, contributing to a mindless experience and meaningless results (Hendry et al., 2007; Uijtdehaage & O'Neal, 2015). At the Keck School of Medicine, student survey response rates declined over time and the content of narrative feedback was low quality. This was due, in part, to students being frequently asked to complete surveys that were over 70 items long. To increase student response rates on course and faculty evaluations, and to enhance data quality, a cohort model was developed and piloted to collect data, via stratified sampling methods, on a regular basis.

**Methods:** Improvement science principles, specifically the Plan-Do-Study-Act cycle, which are often performed in operations research informed this study's longitudinal descriptive design. Descriptive analyses of response rates and narrative feedback were conducted on end of course surveys collected from medical students in the Classes of 2017 through 2021 and compared over time.

**Evaluation Plan/Results:** Implementation of the cohort model yielded dramatic and stable increases in students' survey response rates. The model was piloted with the Class of 2018 in their second year, which yielded an overall average response rate of 89.37%. The cohort model also increased the amount of narrative feedback students made on their evaluation forms. In the first year of implementation the cohort model increased student narrative feedback from 1,948 comments in AY14-15, to 4,921 comments in AY 15-16. Both the response rates to surveys, and the number of comments continued to increase in the three years post-cohort model implementation.

**Potential Impact/Lessons Learned:** The standards for evaluation required by the AAMC ensure that medical schools are accountable to their students. Adopting evaluation approaches such as the cohort model may promote a culture of improvement in the following ways: relief from survey fatigue among medical students and increases response rates; and higher quality narrative responses from students that allows for data aggregation and triangulation with quantitative findings.

**References:**

1) Hendry, G., Cummings, R., Lyon, P., & Gordon, J. (2001). Student-Centered Course Evaluation in a Four-Year Problem Based Medical Program: Issues in Collection and Management of Feedback. *Assessment & Evaluation in Higher Education*, *26*(4), 327–339.
2) Marsh, H. W., & Roche, L. A. (1997). Making Students' Evaluations of Teaching Effectiveness Effective: The Critical Issues of Validity, Bias, and Utility. *American Psychologist*, *52*(11), 1187–1197.
3) Uijtdehaage, S., & O'Neal, C. (2015). A Curious Case of the Phantom Professor: Mindless Teaching Evaluations by Medical Students. *Medical Education*, *49*(9), 928–932.

**Early Identification of Struggling Interns with Personal Coaching as a Vehicle for Improvement**

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**Idea/Problem Statement:** We aim to identify poorly-performing interns on their inpatient wards rotation and target their deficiencies through work with a personal coach.

**Need/Rationale:** Each year new interns start their careers as physicians with varying levels of preparation and skills (King, 2017). Inevitably, some interns at every institution will struggle with the efforts of patient care and systems-based demands. Early recognition of these struggling interns, with interventions to correct their deficiencies, allows for the greatest chance of success both for the interns and the patients they care for. Many residency programs lack a structured mechanism of identification and intervention for struggling interns outside of a formal remediation or probation program. We believe there is a need to develop and formalize early interventions in order to avoid the need for later remediation where possible.

**Methods:** The objective of this innovation is to identify poor performing interns by the end of their first inpatient rotation, pinpoint their strengths and weaknesses, and intervene by providing a coach to work with them individually to improve needed skills. We designed a checklist of requisite skills an intern needs to develop proficiency in. The checklist is completed by the intern's attending and resident to identify areas in need of improvement. This project starts at the beginning of the year, with skills analysis completed within the first two months, and coaching commencing thereafter for as long as is needed to achieve proficiency with intern skills.

**Evaluation Plan/Results:** We will use the skills checklist to assess intern competencies prior to the intervention and after the intervention. Each intern's supervising resident and attending will evaluate the intern based on the checklist. Additionally, we will use a Likert scale and a qualitative survey to assess attitudes toward the intervention among interns and their residents and attendings.

**Potential Impact/Lessons Learned:** The ultimate goal of this innovative program is to increase competency among early interns to provide improved, higher quality, more efficient patient care, while enhancing intern satisfaction and reducing intern burnout.

**References:**

1) King, C, et al. Defining Medical Student Patient Care Responsibilities Before Intern Year: Results of a National Survey. Southern Medical Journal, Dec 2017.
2) Krzyzaniak, S, et al. A qualitative study of medical educators' perspectives on remediation: Adopting a holistic approach to struggling residents. Medical Teacher, May 2017.
3) Kalet, A, et al. Twelve tips for developing and maintaining a remediation program in medical education. Medical Teacher, April 2016.

**Using Medical Student Performance Analytics to Optimize Academic Progression**

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**Idea/Problem Statement:** Meeting the academic needs of an increasingly diverse student body can pose significant challenges to a school's educational infrastructure

**Need/Rationale:** Many schools have adopted a mission-based admissions process with a view towards graduating professionals who are committed to providing care to our diverse population (1). This mission naturally leads to greater demographic and academic diversity among matriculants. The benefits of student diversity also come with challenges as these students more often report being disadvantaged, which has been, albeit not consistently, associated with slower academic progress (2,3). In order to sustain the mission-based admissions process and facilitate the success of all students, there is an unmet need to develop models that can predict future academic performance to guide early intervention and ensure seamless academic progress. This single center study was conducted to test a series of time-ordered models of demographics and early academic performance in medical school to predict success in subsequent high stakes standardized exams.

**Methods:** Data available at matriculation and early academic performance data (year 1 and 2) were obtained for 331 students from 2014-2016. We evaluated the incremental predictive value of a series of linear regression models of USMLE Step 1 and 2 scores beginning at admission. For the USMLE Step 1 models, predictors included gender, self-reported disadvantaged status, prematriculation metrics (GPA and MCAT), pre-clerkship course scores, and the comprehensive basic science exam (CBSE). For the USMLE Step 2 models, we included and all of the aforementioned predictors plus Step 1 score. Estimates of sensitivity and predictive value positive (PPV) for passing the exams were also obtained for both USMLE Step 1 and Step 2.

**Evaluation Plan/Results:** 59% of the students were female and 59% self-reported as having a disadvantaged status. Average metrics for the entire cohort were 3.6 for GPA, 73.9 percentile for the MCAT, 220.3 for Step 1, and 241.8 for Step 2. Lower Step scores were associated with female gender and disadvantaged status. There was a positive relationship between GPA, MCAT percentile, pre-clerkship, and CBSE scores, and Step scores. For Step 1, the R2 (variance explained) was 59% after the first curricular block with incremental increases after subsequent courses with an increase to 70% with the addition of the CBSE score. For Step 2, the R2 (variance explained) was 41% after the first curricular block with incremental increases after subsequent courses with an increase to 67% with the addition of the Step 1 score. The Step 1 and step 2 models had a sensitivity of 66% and 75% and PPV of 52% and 43% respectively for predicting a passing score on the exams.

**Potential Impact/Lessons Learned:** Early identification of at risk students is feasible. Cost-effective interventions can now be developed with the goal of maximizing student progress while minimizing stigma. Future directions include developing models for predicting clinical competence and assessing the impact of interventions.

**References:**

1) Holistic Review in Medical School Admissions and Selection: A Strategic, Mission-Driven Response to Shifting Societal Needs. Conrad SS, Addams AN, Young GH. Acad Med. 2016 Nov;91(11):1472-1474.
2) Medical School Performance of Socioeconomically Disadvantaged and Underrepresented Minority Students Matriculating after a Multiple Mini-Interview. Jerant A, Henderson MC, Griffin E, Talamantes E, Fancher T, Sousa F, Franks P. J Health Care Poor Unders
3) Examining Demographics, Prior Academic Performance, and United States Medical Licensing Examination Scores. Rubright JD, Jodoin M, Barone MA. Acad Med. 2018 Jul 17

**Gaps in Diversity and Inclusion Educational Standards across Health Professional Programs**

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**Idea/Problem Statement:** To assess the existing data of diversity and inclusion training in current accreditation and curricular graduate healthcare documents.

**Need/Rationale:** Healthcare professionals are held to a high social standard when working with a diverse patient population. There is little published about the current teaching and training of diversity and inclusion (D&I) curricula in professional schools. In an era of increasing awareness of these complex issues, we explore the current accreditation and curricular materials with the aim of discerning the prevalence, depth, gaps, and trends in teaching D&I-related concepts.

**Methods:** Accreditation and curricular documents of various healthcare professional training programs were selected. Documents were evaluated for the following concepts: cultural competency (general, communication, implicit bias, diversity, humility); social disparities (general, dimensions, health inequality, social determinants); and advocacy (general, levels of advocacy, and response). Concepts were ranked by two independent raters to yield an average score from 0 (does not address) to 4 (detailed teaching instructions) to determine the depth and detail described for the 15 sub-topics within these general categories. Scores were then averaged and tallied for individual domain scores and an overall score. Documents were then further assessed for strengths and weaknesses. Representatives from each professional program reviewed the findings to ensure comprehensive evaluations.

**Evaluation Plan/Results:** Nineteen documents were reviewed for eight fields (audiology (2); dental (2); nursing (5); occupational therapy (2); pharmacy (2); physical therapy (2); medicine (3); social work training (2)). There were 11 accreditation and 7 curricular documents. One was a policy statement. Programs scored an average of 16.5/48 points and ranged from social work, with 31 points, to audiology and dental with 8.5 points. Accreditation documents scored an average of 12.3; curricular scored 23.4. The teaching of and requirements for D&I related concepts are not standardized across healthcare professions. Programs were inconsistent in their definition of terms (e.g., diversity) as well as expectations for curricular implementation and student performance. No profession had a comprehensive curricular guide. Further investigation is needed to determine optimal requirements and teaching strategies.

**Potential Impact/Lessons Learned:** By first recognizing the need for a consistent, detailed curriculum, we can now collaboratively develop a tool to improve education for future healthcare providers and standardize interprofessional D&I related communication about patient care.

**References:**

1) AAMC. (2008). Tool for assessing cultural competence training (TACCT). Retrieved from https://www.aamc.org/download/54344/data/tacct_pdf.pdf
2) APTA. (2014). Blueprint for teaching cultural competence in physical therapy education. Retrieved from https://www.apta.org/Educators/Curriculum/APTA/CulturalCompetence/
3) NASW. (2015). Standards and indicators for cultural competence in social work practice. Retrieved from https://www.socialworkers.org/LinkClick.aspx?fileticket=PonPTDEBrn4%3D&portalid=0

**Starting From Scratch: An Innovative 2-Week Block and Modular Quarter Schedule**

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**Idea/Problem Statement:** We developed 2-week block schedules to enhance spaced repetition and progression of rotations, allow quarterly schedules and facilitate resident bonding.

**Need/Rationale:** Scheduling is the bane of program directors' and coordinators' existence for good reason. Creating, entering, modifying and maintaining annual block and daily rotation schedules consumes significant time and energy. We reviewed the "X+Y" and "Clinic First" models currently touted as the solution to continuity and team-based care and realized that the solution for our program was much simpler. Our facility does not rely on residents for provision of service or access. Starting with only 6 residents (with 18 at full buildout), we have flexibility in scheduling without service coverage expectations. Given this setting, we implemented a pure 2-week block schedule to enhance spaced repetition of the main rotations: Hospital Based Service (HBS or Inpatient Medicine); Pediatrics; OB/GYN; Emergency; Surgery and Procedure Clinic. As we started our new residency program, we developed a model that provided an orderly progression of rotations, was internally cohesive and facilitated stronger resident bonds. We built in Clinical Skills (CS) and Professional Development (PD) blocks each year to provide robust training in these areas. Residents participate in CS/PD blocks with their cohort to improve team camaraderie which is often lacking. With six residents and 24 blocks per year, we were able to divide the rotations into four quarters and balance the rotations in each quarter, while maintaining a stable overall block schedule, and allowing for easier schedule changes.

**Methods:** PubMed searches for "alternative residency scheduling", "2 week residency block schedule", and "X+Y residency block schedule", yielded few articles providing guidance for our model. We utilized principles set forth by Bodenheimer et al. in their "Clinic First" model, including scheduling clinics on separate days as inpatient duties, increasing clinic half days, and engaging leadership in the planning and implementation of the schedule. Our "A-HA!" moment was adding the CS/PD blocks to the schedule, which left 24 blocks each year (52/2 – 2=24). This meant we could divide our rotations into 6 blocks per quarter. Because the schedules repeat 6 times per quarter, each 2-week schedule looks the same, only with different residents in each rotation, further decreasing variability of schedules. This also allows residents to inform the incoming resident about the next rotation. Each cohort of residents (PGY1, PGY2, and PGY3) will go through the CS/PD blocks with their own class to increase team bonding. For schedule changes, we can swap one resident's quarter schedule with another, but the overall schedule stays the same. No more "domino effect" of schedule changes requiring multiple changes to multiple schedules! To move a rotation, we only need to swap that block with another rotation from another quarter. We can also load-level our longitudinal clinics (FMP, dermatology, community, urgent care) by moving clinics to different day, which then adjusts the whole quarter schedule.

**Evaluation Plan/Results:** The principle of spaced repetition was used to set the recurrence of the repeated rotations. However, since the exposure to each rotation is brief, non-Family Medicine faculty have less time to familiarize themselves with our residents during each rotation. Many faculty have voiced their concern about residents' ability to adapt to each rotation at this pace. We will investigate these concerns utilizing our rotation evaluations from both faculty and residents. This schedule has made fine tuning much more focused (1 quarter at a time) without significant concerns about downstream effects disrupting the overall schedule. We will need to track the total number of changes to the schedule (2-week rotation or annual block) to determine how much disruption occurred with these changes. Future plans for evaluation include use of ethnographic research methods (observation and fieldnotes) to document the 2-week blocks' effects on residents and faculty, using specific reflective writing prompts.

**Potential Impact/Lessons Learned:** The 2-week block/quarter schedule can potentially decrease the time residencies spend managing schedules. For programs not on a 2-week block schedule, certain principles may simplify scheduling. Example: modular quarter-based schedules allow swapping schedules just by changing the assigned resident.

**References:**


1) Clinic First: 6 Actions to Transform Ambulatory Residency Training. R Gupta, K Barnes, T Bodenheimer, Journal of Graduate Medical Education, October 2016, Vol. 8, No. 4, pp. 500-503. https://doi.org/10.4300/JGME-D-15-00398.1
2) Annual block scheduling for family medicine residency programs with continuity clinic considerations. JF Bard, Z Shu, DJ Morrice, LK Leykum, R Poursani, Institute of Industrial and Systems Engineers Transactions, 2017, 7:1 pp. 1-14 https://doi.org/10.1080
3) Alternative Scheduling Models: Improving Continuity of Care, Medical Outcomes, and Graduate Medical Education in Resident Ambulatory Training. AJ Hussain, The Journal of the American Osteopathic Association, December 2016, Vol. 116, pp. 794-800 doi:10.755

**The Humanism Pocket Tool: Finding the Joy in Treating Challenging Patients**

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**Idea/Problem Statement:** How can clinicians stay humanistic—respectful, empathic, and compassionate—with patients with complex behavioral or physical issues?

**Need/Rationale:** Your brain is equipped with automatic, emotional responses biased to protect you from people who might be dangerous, infectious, or time-consuming. These emotions can sneak up on you and replace compassion with fear, disgust, or anger. Particularly for those in interprofessional settings with complex and marginalized populations, teaching and delivering team-based humanistic care require a shift in how humanism in medicine is learned, taught, and implemented. Existing practices can be time and labor intensive and challenging to implement for interprofessional teams that can span a myriad of professional and patient contexts. Our “cool idea” – the Humanism Pocket Tool (HPT) - emphasizes explicit strategies and techniques designed for providers to promote patient-centeredness by counteracting reflexive, dehumanizing responses to patients with challenging behaviors. Using the Swiss Army Knife as a metaphor, the HPT pulls from the realms of appreciative inquiry, storytelling, active listening, and mindfulness to create a more compact and prescriptive humanism curriculum for interprofessional collaboration and learning.

**Methods:** We developed a standardized, quick, and explicit tool for interprofessional teams in their care of homeless Veterans and applied and integrated simple yet effective intrapersonal and interpersonal techniques into common clinical interactions. Via our HPT, clinicians and trainees learn to: 1) coach themselves; 2) be warm; 3) listen actively; 4) condense each patient’s personal story into a highly compact form, termed a ‘Vivid Vignette’; 5) use the Vivid Vignette to identify the patient in progress notes and in conversations with colleagues, so as to inspire and coordinate care; 6) appreciate differing professional perspectives on the patient; and 7) know their team members as people. Each technique builds upon each other to progress towards creating, or enriching, the patient’s story and using this story to inform, prioritize, and strengthen the quality of care. Rooted in evidence-based literature and best practices as well as the long-championed practice of narrative medicine, the HPT continues to evolve as an interdisciplinary tool that members of the interprofessional team can engage with and seamlessly incorporate into their daily practice.

**Evaluation Plan/Results:** The HPT is still a work in progress and we intend to continue its evolution as we learn more about how different teams teach and practice and the various obstacles they run into during patient care. Much of the HPT’s ongoing development and dissemination has occurred organically and we consider our evaluation plan to be grounded in an exploratory phase, driven by collaboration. To date, we have over 15 collaborators across the country that have begun using the HPT at their respective sites and we’ve begun a process of reaching out to these providers to learn more about how they utilize the HPT and what can be done to improve it. We would like to use the IME forum as an opportunity to extend this discussion and connect with other like-minded colleagues in an effort to delve into conversations about time efficiency as it relates to the HPT, other best practices that may enhance the HPT, and the role of the HPT in non-team-based care environments.

**Potential Impact/Lessons Learned:** We strongly believe the HPT can help all clinicians maintain, or strengthen, their humanistic attitudes and behaviors in even the most challenging environments. In our interprofessional setting, it has enhanced collaboration, teaching and enriched our care of homeless Veterans.

**References:**

**Partnership between Medical Education and Medical Illustration Programs**

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**Idea/Problem Statement:** Establish a mutually beneficial partnership between the school of medicine and medical illustration program students and faculty.

**Need/Rationale:** Two programs have long histories. Medical College of Georgia (MCG) was established in 1828, and the Medical Illustration program in 1948. Having good visuals are imperative to medical education; just as having the appropriate medical applications are imperative to medical illustrations. Three years ago, the two programs partnered to explore how they could mutually benefit from working together. The team included leaders of two programs: a medical educator and a medical illustrator. Based on the needs of both programs, a number of projects were planned but had to be developed before applying it to life processes. The aim of this presentation is to demonstrate the developed process and the subsequent projects implemented, as well as, the benefits of partnering the two programs and its future directions.

**Methods:** We are focusing on two areas: projects and the development process. For each project the following outline was developed: 1) Identify need; 2) Find experts and assemble team. Considerations: What content do experts need and what is their availability? Set expectations regarding their involvement; 3) Timeline for project; 4) Identify content; 5) Determine delivery method; 6) Create outline and/or storyboard of educational intervention; 7) Assemble media – photos, videos, illustrations, animations; 8) Build product; 9) Test with end users; 10) Implement intervention; 11) Evaluation of impact. In the last three years, our partnership's completed projects are a surface anatomy training session, body painting with physical exam training, HEENT and OB/GYN E-Guides, multimedia library guide, drawing course for GYN resident, medical illustration master's projects: Ovarian Neoplasms, Heart Conduction. Current projects include neurologic and musculoskeletal E-Guide and a virtual patient simulation case. Future directions include medical illustration practical projects/medical education elective, medical student elective to improve visual skills.

**Evaluation Plan/Results:** Every project includes evaluation of impact. We developed two semi-structured surveys with a focus on Level 1 of the Kirkpatrick model (1) to assess how students react to the learning event. The utilization-focused evaluation is focused on delivery and content for pre-session. This survey assessed students' experience with the pre-session materials. The session is an event when students apply the material they learned from developed resource. The student post-session survey is focused on how the developed resource helped achieve learning tasks during the session. Students in the post-session survey are asked to evaluate their perception of preparedness for participation. We asked for feedback on how we can improve the material during this time as well. Data from the student surveys analyzed with descriptive statistical analysis and comments using qualitative methods. Once again, there is variation of this approach based on the project.

**Potential Impact/Lessons Learned:** Visualization of complicated concepts in medicine allows to build a visual vocabulary to interact with colleagues and patients, in addition to increasing comfort level in learning physical exam. This collaboration can serve as a model for development of partnership with medical illustrators and medical education.

**References:**

1) Kirkpatrick DL. Evaluation of training. In: Craig RL, editor. Training and development handbook: a guide to human resourcedevelopment. New York: McGraw-Hill; 1967:87-112.

**A Novel Educational Rap Music Video for the Education of Graduate Entry Medical Students**

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**Idea/Problem Statement:** To create and assess the effectiveness of a rap music video compared to a presentation, teaching medical students about paediatric status epilepticus.

**Need/Rationale:** Medical students have a vast amount of information to learn. In most university courses, medical students are commonly taught by a lecturer using a PowerPoint presentation. However, as medicine advances, there is an ever-increasing amount of information to learn in an ever-dwindling amount of time. Therefore, there is a need to produce short and engaging tools to educate medical students, allowing students to easily recall the information given to them. In particular, students should know how to manage emergencies, as these are time dependent and often life-threatening. Evidence suggests that using song lyrics as opposed to spoken words enhances the recall of information. (1) To our knowledge there is no current literature examining the effect of rap music, specifically, on recall of information. However, Purnell-Webb et al. (2) showed that rhythmic information accompanied by a rhythmic beat, even without a musical melody, also increased participants' ability to recall information. Therefore, one may hypothesise that as rap music is based on rhythmic beats, that this should also increase recall and could be a good educational tool. Videos are succinct and easily accessible at any time and therefore, provide a perfect vessel for delivering a rap for medical education. Tackett et al. (3) showed that millions of viewers are already watching medical based YouTube videos, so why not utilise such videos in medical education?

**Methods:** The study has ethical approval from Swansea University Medical School Research Ethics Sub-Committee. The lyrics for the rap were written by one of the authors (Cara Thomas) and put to a backing track using a mobile application called 'RapChat' (with permission of use). The authors and Dr. Vallabhaneni directed the video, which starred themselves and other medical students as doctors treating a paediatric patient with status epilepticus. The video was shot and produced by Steve Atherton from Morriston Hospital Medical Illustration Department. A lecture-style presentation was made containing identical clinical information and voice-over done by one of the authors (Rachel Deller). Participants were first and third year Graduate Entry Medical students attending Swansea University Medical School at the time of the study. First year students were selected in a set teaching slot, where groups of 4-5 students were allocated to either intervention on an alternating basis. Third year students were selected using convenience sampling and randomised using computer generated block randomisation.

**Evaluation Plan/Results:** Students were asked to fill in a quiz after the interventions to assess how well they had learned the information. This was marked out of nine. 68 participants took part, 36 in the rap music video group and 32 in the presentation group. Results showed no statistically significant difference between average participant scores in the rap music video group and the presentation group (6.92 (SD=1.63) and 7.47 (SD=1.44) respectively, p=0.145). This indicates our novel rap music video is as good as the common teaching method medical students currently receive. Students were asked to give anonymous feedback about the intervention. The rap music video received more positive feedback than the presentation. Students found the rap video "entertaining", "engaging" and "memorable". The presentation was "succinct", "clear" but "boring". Our rap music video may, therefore, provide a more appealing and engaging alternative teaching method.

**Potential Impact/Lessons Learned:** Educational rap music videos offer an exciting and effective alternative teaching method that could be expanded out of the classroom to teach not only one cohort of medical students but millions of students worldwide via channels such as YouTube.

**References:**


1) Kilgour AR, Jakobson LS, Cuddy LL. Music training and rate of presentation as mediators of text and song recall. [Internet] Memory & Cognition. 2000 [cited 2018 Aug 15];28(5):700-710. Available online: https://link.springer.com/article/10.3758/BF03198404.
2) Purnell-Webb P, Speelman CP. Effects of music on memory for text. [Internet] Perceptual and Motor Skills. 2008 [cited 2018 Aug 15];106:927-957. Available online: doi: 10.2466/pms.106.3.927-957.
3) Tackett S, Slinn K, Marshall T, Gaglani S, Waldman V, Desai R. Medical Education Videos for the World: An Analysis of Viewing Patterns for a YouTube Channel. [Internet] Academic Medicine. 2018 [cited 2018 Sep 10];93(8):1150-1156. Available online: doi: 10

**Bring Yourself to Work**

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**Idea/Problem Statement:** Promote a sense of self in 75 pediatric residents through a monthly lecture series led and and attended by pediatric housestaff and faculty.

**Need/Rationale:** Burnout in medical trainees is a growing problem and is estimated to occur in 75% of residents across disciplines (1). Burnout is a state of depersonalization, mental, and physical exhaustion. In our residency, we have found that most residents experience burnout during their second year, where they spend 7+ months in the inpatient setting. While sleep deprivation is an attributing factor, many residents self-report feeling “not themselves” or “like robots.” We believe it is possible to regain a sense of self and purpose during this time. Inspired by the article written by Sgro (2), we expanded upon his “Bring Yourself to Work” idea and turned it into a lecture series promoting wellness by embracing personalities, goals, and hobbies and finding a way to meld them into work.

**Methods:** PGY 1-4 pediatric residents (N=74) will attend a total of 12 monthly “Bring Yourself to Work” hour-long lectures during their scheduled morning report. Each lecture is prepared in advance by a co-resident, attending, or faculty member in the pediatric department. Lecturers are allowed 60-minutes to talk about something meaningful in their life. Examples thus far include “Narrative Medicine,” “Cartooning”, “Percussion,” and “Juggling.” The lecturers are encouraged to describe why this matters to them and how this ties back to their roles as pediatricians. Lecturer selection is done on a voluntary basis. In addition to residents, the audience is composed of attendings, nurses, or other hospital providers. They are welcomed to listen, ask questions, and participate in activities that occur during the lecture. Funding has been approximately $100 per lecture, however no one has used or requested it. The last lecture of the series will be one of self reflection, and through guided practice, each attendee will write a notecard about what is meaningful to to them and how they will bring it to work each day. The notecards will become part of a mural outside the chief residents’ office to serve as a constant reminder of the sentiments expressed in the lectures. At the end of the year, lecturers and attendees should be able to describe what aspects of their lives are considered meaningful to them and how they can try and incorporate those aspects into their role as physicians

**Evaluation Plan/Results:** Attendee reaction will be assessed with an online evaluation sent after each lecture. These currently provide feedback to the speaker and medical education office with regards on value of the lecture and effectiveness of the speaker. The chief resident reviews and distributes the evaluations in aggregate to the lecturer. Lecturers also complete a post-event survey that reflects on the value gained while creating and giving the lecture. We also look to compare this year’s results of the annual resilience survey to that of last years and see if the “Bring Yourself to Work” lecture series is mentioned.

**Potential Impact/Lessons Learned:** In order to prevent burnout in medical trainees, we must encourage them to covet and foster their core values, even when the the journey of their practice gets unremittingly tough.

**References:**

1) Fahrenkopf “Rates of medication errors among depressed residents” BMJ 2008; 488-491.
2) Sgro “Bring Yourself to Work” Journal of GME. 230-231, 2018 April.

**Education Thru Theater Arts: An Innovative Resident Teaching Module Enhancing Patient Communication**

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**Idea/Problem Statement:** Resident training programs and GME must address resident-patient communication to enhance patient safety.

**Need/Rationale:** Patient harm from medical miscommunication has increased over the past decade, and is now considered a contributing factor to medical errors, the third leading cause of death in the United States. A reported 7149 medical malpractice cases occurred due to communication errors ending in patient injury or death (Makay, 2017). Additionally, errors cost the U.S. $1.7 billion in 2015 (CRICO Strategies, 2015). The purpose of this study is to investigate creative communication strategies in resident-patient relationships and to evaluate the efficacy of SUNY Upstate University, College of Medicine's creative residency teaching module: Education Thru Theater Arts (ETTA). This model was developed to improve resident and patient communication, safety and satisfaction. Additionally, ETTA aligns with a number of ACGME Competencies: Practice Based Learning and Improvement, Patient Care and Procedural Skills, Systems Based Practice and Professionalism.

**Methods:** A mixed methods research design was used. The qualitative module entailed non-verbal vignette sessions between medical residents and student actors from Syracuse University's Theatre Department, held at Syracuse Stage in Syracuse, New York. These sessions were observed and followed by resident feedback interviews. Quantitative analysis utilized Internal Medicine Resident Program Evaluations of ETTA through MedHUB, the electronic web-based Residency Management System, as well as Press Ganey Patient Survey data from resident clinics. Participants were selected through purposeful selection from a participant pool consisting of first through third year medicine residents (PGY1's – PGY3's) at SUNY Upstate Medical University's Internal Medicine Residency Program.

**Evaluation Plan/Results:** Completion date for collection of data: July 1, 2019. This study hopes to outline the importance of resident-physician/patient relationships and how resident's emotional intelligence and communication strategies play a role in health literacy to promote patient care, safety and satisfaction. Hypothesis: Education Thru Theater Arts improves resident-patient relationships, satisfaction and safety outcomes.

**Potential Impact/Lessons Learned:** National Level: 1) Increased patient safety & satisfaction; 2) Increased resident satisfaction & wellness; 3) Decreased errors & cost. Program Level: 1) Meets ACGME Internal Medicine Residency Program Requirements; 2) Meets ACGME Common Program Requirements; 3) Limits ACGME RRC citations.

**References:**

**Can Google Docs Help Evaluate and Train Docs?**

Soufan, Rami; Samir, Johna; Victor, Noel
*Arrowhead Regional Medical Center/Kaiser Fontana*

**Idea/Problem Statement:** To develop a simple and readily available application for real time evaluation of residents' performance during daily workhours and on call duties.

**Need/Rationale:** Assessment of residents' performance outside the operating room or in other non-operative specialties is paramount. It helps identify gaps in many of the core competencies in real time such as medical knowledge, patient care, and even professionalism. We explored the possibility of using Google Docs as the platform by which such a tool would be made available to all residency programs at no cost.

**Methods:** Using Google Docs we were able to build a template for the evaluation of residents' performance during daily work hours and when on call. The tool focuses on specific measurable metrics such as punctuality, efficiency, attention to details, and completion of tasks by which the residents are evaluated. This platform was tested and proved to be versatile and easy to apply.

**Evaluation Plan/Results:** The faculty member will be the one to evaluate the residents' performance on the areas listed above. The compiled data will be made available to all parties involved. This data can be anonymous. There is also a space for free texting for additional feedback or clarifications. The program director will analyze the data and looks for patterns regarding residents' performance, and whether the data is consistent between different faculty members regarding any individual resident. The tool is not validated yet.

**Potential Impact/Lessons Learned:** There are many concerns regarding residents' evaluation, particularly the end of rotation evaluation. A major concern is the lack of specific metrics that residents can be held accountable to. Having a simple and versatile tool will enable faculty to complete an immediate evaluation for feedback.

**References:**

1) Golnik KC1, Lee AG, Carter K. Assessment of ophthalmology resident on-call performance. Ophthalmology. 2005 Jul;112(7):1242-6.

**Can Google Docs Help Evaluate Operative Skills and Faculty Supervision?**

Soufan, Rami; Samir, Johna; Victor, Noel
*Arrowhead Regional Medical Center/Kaiser Fontana*

**Idea/Problem Statement:** To develop a simple and readily available application for real time evaluation of residents' operative skills and the level of faculty supervision.

**Need/Rationale:** Assessment of operative skills and the level of faculty supervision can be challenging. Several tools and models have been developed and validated in the literature. However, their use has been limited to a few residency programs due to propriety rights. One such validated tool is the Zwisch model (1,2). We explored the possibility of using Google Docs as the platform by which such a tool would be made available to all residency programs at no cost.

**Methods:** Using Google Docs we were able to build a template of the Zwisch model for evaluation of residents' operative skills, and the faculty level of supervision that can be accessed from any smart phone. This platform was tested and proved to be versatile and easy to apply.

**Evaluation Plan/Results:** For every case, the resident is going to assess the level of the faculty supervision using the Zwisch model. Every faculty member will assess the operative skill of the resident using the same model. There is also a space for free texting for additional feedback or clarifications. The compiled data will be made available to all parties involved. This data can be anonymous. The program director will look if the residents' evaluation correlates with that of the faculty.

**Potential Impact/Lessons Learned:** Teaching in the OR is challenging, which is compounded by the evaluation of residents' performance and providing timely feedback. Waiting until the end of rotation to provide such assessments and or feedback enables several evaluation biases such as the halo effect, the horns effect and contrast bias.

**References:**

1) DaRosa DA, Zwischenberger JB, Meyerson SL, et al. A theory-based model for teaching and assessing residents in the operating room. J Surg Educ. 2013;70(1):24-30.
2) George BC, Teitelbaum EN, Meyerson SL. Reliability, validity, and feasibility of the Zwisch scale for the assessment of intraoperative performance. J Surg Educ. 2014;71(6):e90-e96.

**Early Human Development: Integrated Course of Embryology and Genetics**

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**Idea/Problem Statement:** Creation of an integrated course for more accessible and coherent learning by students of Embryology and Genetics.

**Need/Rationale:** There are now plenty of different curricular approaches to medical education. The integration of disciplines is one of the main trends, yet, in many cases, continues to remain a challenge (1). The challenge includes the organization of the process, itself, the level of detail to each integrated course, and relevance of teaching material. It is widely discussed in the literature that integrated programs promote deep learning and better retention of knowledge (2,3). Because of the increasing role of genetic discoveries in understanding of the mechanisms of development, we believe that it could be helpful for students' understanding of both subjects to integrate Embryology and Genetics courses. The purpose of these curricular changes is to allow students to learn the material in a more convenient, accessible, coherent manner.

**Methods:** The courses of Embryology and Genetics were initially taught as separate subjects. Since then, the topics of Embryology and Genetics have been combined into one course for term 1 students. The new course, Early Human Development, includes genetics topics about DNA structure and function, replication, transcription, protein synthesis, DNA mutations and repair, regulations of gene expression, mechanisms of inheritance, in addition to topics of Clinical Genetics (chromosomal disorders, mosaicism and prenatal genetics). The Embryology portion of the course covers topics of gametogenesis, fertilization and general aspects of the first trough eight weeks of the development, including the development of the musculoskeletal system and birth defects. The cardiovascular, digestive, urinary and genital systems development is taught in the Embryology course for term 2 students and coordinated with Anatomy organ systems course. To compare outcomes between term one and term two students, Embryology standardized questions were used. We compared the level of students' performance in the Embryology part of the material before the course was integrated with Genetics versus after. The students were also surveyed on their perception of the effectiveness of the integrated course.

**Evaluation Plan/Results:** The new Early Human Development course was introduced in Summer 2016. The course is taught three times per year. The quality of responses to the standardised Embryology exam questions after it was integrated with the Genetics course increased up to 17.7% in 2016, and up to 18.3% in 2017. In 2018, overall sentiment remained positive with students' performance increasing 18.1%. The difference was statistically significant ($p < 0.01$). Overall, 268 students were evaluated between the Summer 2016 semester and Summer 2018 semester. The students' responses to the effectiveness of the integrated course was overall positive. Several responses suggested the faculty to rearrange several topics within the course for a better flow of the material, which was implemented in 2016. The level of feedback was 60.8% (163 students).

**Potential Impact/Lessons Learned:** With our study we have confirmed that integration of the Embryology and Genetics courses might help students learn both subjects with better outcomes. We plan to compare the standardised Genetics questions as the next step of our study. This experience can be transferred to any other school.

**References:**

1) Hopkins R. et all. Integrating basic science without integrating basic scientists: reconsidering the place of individual teachers in curriculum reform. Acad Med 2015; 90:149-153. doi: 0.1097/ACM.0000000000000437.
2) Habibeh Ahmadipour, Farideh Hajmohammadi. Horizontal integration in basic sciences at Kerman University of Medical Sciences: medical students' viewpoint. Res Dev Med Educ, 2016, 5(2), 93-96.

**A Homelessness Prevention Landscape Scan for the Massachusetts Department of Public Health**

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**Idea/Problem Statement:** The prevalence of homelessness has doubled in Massachusetts since 1990. In January of 2017, there were 17,565 people counted as homeless statewide.

**Need/Rationale:** Nationally and statewide, a small fraction of the US homeless population is chronically homeless (without housing for several consecutive months). The majority (roughly 85%) of the US homeless population is transiently homeless (i.e., only on the streets for a few days, but often couch surfing, etc.) due to income and housing instability. Most resources for homeless populations have historically been allocated to the chronically homeless (as they tend to represent the most 'extreme' need) but recent efforts have shifted to prevention. In line with national trends, the Massachusetts Department of Public Health (MDPH) seeks to shift efforts toward homelessness prevention as part of an approach to reducing homelessness statewide. The landscape scan was conducted as part of this effort.

**Methods:** Objectives: 1) Conduct a landscape scan and provide a report to MDPH summarizing current homelessness prevention strategies employed in comparable settings internationally and within the United States; 2) Make recommendations to MDPH establishing short term and long term homelessness prevention priorities and goals. Approach: The landscape scan included findings from the academic literature on homelessness prevention, government data and statistics, annual evaluations and reports from relevant projects, and other credible sources. The approach was not to conduct a systematic review of the literature only, but rather, to summarize what is well established in the literature and also collect information on novel efforts that may lack robust representation in the academic literature to date. Furthermore, this report is not all-inclusive of the multitude of homelessness prevention efforts to date, but rather seeks to highlight effective and/or novel efforts. For the systematic portion of the scan, the inclusion/exclusion criteria were used below to focus on policies most comparable and relevant to the United States and Massachusetts. The landscape scan final report is divided into five sections: 1) International scan; 2) Landmark US Homelessness Prevention Federal Policy Summary; 3) US National Non-profit Initiative scan; 4) US local initiative scan (state, county, city and local non-profit initiatives).

**Evaluation Plan/Results:** Results of part 1 and 2 of the final report are summarized in accompanying figures. Below are example insights from parts 3 and 4 of the final report. Part 3: United States National Non-profit Initiative Scan: Big picture lessons: Two national non-profits, The National Alliance to End Homelessness (NAEH) and Community Solutions have demonstrated impressive, comprehensive efforts in many cities across the US to unify stakeholders, accelerate progress, and reduce homelessness using many tools (both chronic homelessness reduction and prevention using Homeless Management Information System (HMIS) data. Part 4 – US Local Initiative Scan: State, county, city and local non-profit initiatives: Summary of findings: 12 standout local efforts are detailed as case studies with effective or unique prevention methods highlighted. Example of case study program: I was impressed by the County of Santa Clara, California's Community Plan to End Homelessness 2015-2020, led by the non-profit Destination: Home. This non-profit has effectively unified County government, healthcare stakeholders, institutional (i.e. prisons), and private sectors (i.e. landlords, for profit HMIS companies) along with community engagement efforts and holds all to a high standard targets and timelines. The program has documented significant progress for homelessness reduction and prevention, which they importantly view as a continuum that should be addressed together.

**Potential Impact/Lessons Learned:** This report is used as a guide by MDPH to further homelessness prevention efforts. Additionally, based off of knowledge gained from this project in Massachusetts, along with Marl Ayson, USC pharmacy student, we submitted a winning policy proposal to LA County Medical Association's policy challenge.

**References:**


1) Byrne, T., Treglia, D., Culhane, D. P., Kuhn, J., & Kane, V. (2016). Predictors of Homelessness Among Families and Single Adults After Exit From Homelessness Prevention and Rapid Re-Housing Programs: Evidence From the Department of Veterans Affairs Suppor
2) Apicello, J. (2010). A paradigm shift in housing and homeless services: applying the population and high-risk framework to preventing homelessness. Open Health Services and Policy Journal.
3) County of Santa Clara and Destination: Home. “2016 Annual Report: Community Plan to End Homelessness in Santa Clara County (2015-2020).” Accessed February 2018.

**Advocates and Allies: Building Bridges to Community Resources**

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*Sunrise Health GME Consortium, Family Medicine Residency Program, Southern Hills Hospital*

**Idea/Problem Statement:** Community resources are readily available, but are not accessed. Linking resources and patients can lead to improved wellness on a population level.

**Need/Rationale:** Patients are often instructed to “exercise daily” or “find stress reducing strategies”, but are given little guidance or concrete means by which to attain this goal. Community or recreational centers are often underutilized and underrepresented which does a disservice to patients because they are often cost-effective and convenient means to improve wellness. Additionally, these centers may be utilized by populations that often have difficulty accessing healthcare such as adolescents and elderly patients with limited means of transportation. By extending the boundaries of healthcare beyond the office setting, we hope to utilize the biopsychosocial model to improve healthcare outcomes. Nevada Health Centers (NVHC), a Federally Qualified Health Center (FQHC), is the largest provider of primary care for uninsured and underinsured patients in the state of Nevada. The 2017 Health Resources and Services Administration Uniform Data Services report reveals that 67 percent of NVHC patients live at or below the poverty line. Approximately 25% are uninsured, 44% have Medicaid and 9% utilize Medicare. Prevalent disease processes in our patient population mirror those of the nation as a whole; 34% of patients have hypertension and 16% have diabetes. As providers working in the community, it is our responsibility to combat the disease burden in novel and practical ways to better engage patients in improving physical and mental wellness.

**Methods:** During a community medicine rotation, PGY-1 family medicine residents from the Sunrise Health GME Consortium were given the opportunity to explore the community near the residency’s FQHC partner to better understand the needs of the patient population. One main rotation objective was to develop a project to foster the patient-provider alliance. Armed with increased awareness of how to work with available resources, we are better able to serve our patients by offering realistic and reasonable options to improve healthcare outcomes. Initially, our goal was to find resources for patients to improve physical fitness. However, after analyzing a 1.5 mile radius around the clinic, we were unable to find any gyms or fitness centers, but instead found nine parks and four community centers. Visiting the easily accessible parks in the neighborhood proved to be a revealing exercise. Many areas were littered and occupied by homeless individuals, clearly a deterrent to utilization. However, many parks offered walking tracks and kinetic fitness equipment. Recreation centers offered sessions such as diabetes education, aerobic classes geared towards seniors, and various sports and leadership opportunities for teens. By visiting various community centers in the surrounding neighborhood, we hope to develop a reciprocal relationship by which we can steer patients towards these resources. In turn, we can overcome barriers to healthcare access by reaching out to patients in different settings.

**Evaluation Plan/Results:** As conditions such as diabetes mellitus and hypertension increase the healthcare burden, providers must find ways to overcome barriers to patients’ physical and mental wellness. The community project will be presented to all family medicine residents in the Sunrise Health Graduate Medical Education Consortium program. Additionally, information about nearby community resources will be displayed throughout the clinic. Residents will be given a survey to evaluate the usefulness of content and their confidence in recommending these resources to patients. Questions will include queries such as “How useful was this information?” and “How likely are you to recommend these resources to your patients?”. This will help to direct improved provider education on community resources as well as strategies to engage patients in utilization. Future directions include patient surveys about awareness of resources, subsequent access and satisfaction with their engagement and interest in future projects.

**Potential Impact/Lessons Learned:** Community rotations addressing social determinants of health can lead residents to create new strategies for cultivating community engagement. Linking community

resources and patients' needs can solidify the bond between patient and provider to collaborate to improve healthcare outcomes.

**References:**


1) 2017 Nevada Health Centers, Inc. Health Center Profile. (2017). Retrieved September 18, 2018, from https://bphc.hrsa.gov/uds/datacenter.aspx?q=d&bid=091570&state=NV&year=2017
2) Han, M. A., Kwon, I., Reyes, C. E., Trejo, L., Simmons, J., & Sarkisian, C. (2015). Creating a "Wellness Pathway" between health care providers and community-based organizations to improve the health of older adults. Journal of Clinical Gerontology and Ge
3) Tkatch, R., Musich, S., Macleod, S., Kraemer, S., Hawkins, K., Wicker, E. R., & Armstrong, D. G. (2017). A qualitative study to examine older adults perceptions of health: Keys to aging successfully. Geriatric Nursing, 38(6), 485-490. doi:10.1016/j.gerinu



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**Assessing Knowledge of the Osteopathic Profession in New York City's Asian Communities**

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**Idea/Problem Statement:** Despite having practice privileges in over 50 countries, many immigrant minority communities in the U.S. are unexposed to osteopathic physicians.

**Need/Rationale:** Despite having practice privileges in over 50 countries, many immigrant minority communities in the United States are unexposed to osteopathic physicians (DO) prior to re-establishing healthcare in the United States and thus may be reticent to osteopathic manipulative medicine (OMM). The objective of this study is to identify literature in osteopathic outreach to minority communities and assess osteopathic awareness in New York City's Chinese community. Secondary objectives include characterization of potential barriers in hindering access to osteopathic medicine, and by extension, other minority groups.

**Methods:** An anonymous survey prepared in Chinese and English was used to gather demographics, education level, healthcare habits, and knowledge of the osteopathic profession. To provide a clinical scenario, a health habit question regarding low back pain (LBP), one of the most common reasons for doctor visits and one for which OMM has been shown to effectively treat, was provided to participants. Participants over the age of 18 were randomly selected to complete a paper survey, with the option to decline.

**Evaluation Plan/Results:** 96 surveys fit inclusion criteria, with participants questioned on familiarity with DOs and OMM. Results were categorized based on: 1) gender; 2) age; 3) highest level of education attained; 4) country of birth; and 5) English proficiency. Overall, only 18% of surveyees indicated knowledge about OMM while only 16% seemed to recognize the DO profession. There exists a general lack of awareness of OMM and DOs within the Chinese community in New York City. History, linguistics, and international practice rights were discussed as possible influences that could factor in the lack of osteopathic awareness in Asian communities. In turn, this study may provide a framework for assessing other ethnic minority communities and their knowledge of the osteopathic field.

**Potential Impact/Lessons Learned:** By identifying potential barriers that hinder access to osteopathic medicine, future endeavors can develop education and outreach to increase utilization of DOs as a health resource.

**References:**

1) Licciardone JC. Validity and reliability of the Osteopathic Survey of Health Care in America (OSTEOSURV). J Am Osteopath Assoc. 2003;103(2):89-101.
2) Ghosh C. Healthy People 2010 and Asian Americans/Pacific Islanders: defining a baseline of information. Am J Public Health. 2003;93(12):2093-2098.
3) Licciardone JC. Awareness and use of osteopathic physicians in the United States: results of the Second Osteopathic Survey of Health Care in America (OSTEOSURV-II). J Am Osteopath Assoc. 2003;103(6):281-289.

**Improving Patient Food Insecurity Awareness and Knowledge among Family Medicine Residents**

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*White Memorial Medical Center Family Medicine Residency Program*

**Idea/Problem Statement:** Improving Food Insecurity Awareness and Knowledge Among Family Medicine Residents in an Urban Family Health Center through lectures and implementation.

**Need/Rationale:** Forty-two million Americans live in food insecure households. Food insecurity is defined as the occasional or constant lack of access to adequate food needed for a healthy, active life. Food insecurity is a major public health problem and has a major impact on an individual's well-being (2), but it is seldom addressed during health care visits. (1) By providing Family Medicine resident education and information, through lectures and implementing food security screening questionnaires in patient encounters, we aim to increase their knowledge and confidence in addressing food insecurity and providing resources in their patient encounters.

**Methods:** The participants are the 21 residents in the Adventist Health White Memorial Medicine Residency in Los Angeles, California. The intervention is to: 1) administer a needs assessment survey to all 21 residents; 2) Develop a training module to provide education to all 21 residents on food insecurity and its impact on health; 3) Administer a pretest and posttest to each resident; 4) Implement a 2 question food security screening questionnaire by resident providers during each patient encounter.

**Evaluation Plan/Results:** 1) Attendance will be taken during educational session; 2) Pre- and post-test to assess improvement of resident knowledge; 3) Post session survey to assess resident attitudes, behavior, screening rates, and confidence in screening and discussing patient's food security status and its impact on health.

**Potential Impact/Lessons Learned:** Increase family medicine provider awareness and knowledge that food insecurity is associated with poor health outcomes and should be routinely addressed in health care.

**References:**

1) Smith S, Malinak D, Chang J, Schultz A, Brownell K. Addressing Food Insecurity in Family Medicine and Medical Education. Fam Med. 2017;49(10):765-71.
2) Seligman HK, Laria BA, Kushel MB. Food insecurity is associated with chronic disease among low-income NHANES participants. J Nutr. 2010;140:304-310.
3) Gunderson C, Ziliak JP. Food insecurity and health outcomes. Health Affairs. 34, No.11,2015: 1830-1839.

**Improving Refugee Health Access and Understanding**

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**Idea/Problem Statement:** The goal is to improve access to healthcare for the refugee and immigrant population in Columbia, MO.

**Need/Rationale:** The Mizzou Pediatric Residency advocacy track was established several years ago in collaboration with the three other pediatric residency programs in the state. One of the track requirements is working on a longitudinal project throughout the last two years of residency. In 2016, one resident with an interest in immigrant and refugee health established community relationships with Refugee and Immigrant Services as well as other local agencies serving this population. The Interagency Council for Immigrant and Refugee Health (ICIH) was created as a collaborative of community stakeholders to address developmental and socioemotional needs of the population. In continuation of the previous track residents, our advocacy projects have been designed to help improve health literacy and health access within the refugee and immigrant populations in Columbia, Missouri. Current ongoing projects include a video series about accessing healthcare as well as a text messaging series to provide anticipatory guidance to families. It is important, as a community, to be culturally aware and understand the needs of the community.

**Methods:** The Medical Access Videos were filmed by Columbia Access TV with MU Center for Health Policy, School of Journalism, and the Interagency Council for Immigrant and Refugee Health. The focus of the video series is to give a better understanding of the type of medical care refugee and immigrants have access to in Columbia, MO. The video was officially released on April 27th, 2018. It is currently being played on Columbia Access TV, YouTube, with links located on Facebook. It has been distributed to Refugee and Immigrant Services, Columbia Public Schools, Daniel Boone Library, First Chance for Children, Well Baby Nursery, Center for Early Learning, Family Health Center, MU Child Psychiatry, and MU marketing for primary care clinics. In addition, there is a great need to address mental health in the refugee and immigrant population. An animation video is currently being produced to help with the acceptance of mental health.

**Evaluation Plan/Results:** The goal is to impact the health of the refugee population. As stated above, this video has been distributed to several locations in Columbia MO. It has been decided to focus on the well baby nursery and the introduction of the video to all families. This will allow us to understand the impact of the video. There will be a pre- and post- questionnaire, with a total of 4 questions (1 question for each location: ER; Urgent; Pharmacy; and General Pediatrics) to assess the understanding of the video. These questionnaires will be given at numerous visits during the first year of life.

**Potential Impact/Lessons Learned:** The impact our team hopes to capture in addition to health access and health literacy in the refugee community, is to help improve our communities appreciation of all cultures and work together to better a community.

**References:**

**Using a Video Resource to Standardize Evaluation of Medical Spanish Proficiency**

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**Idea/Problem Statement:** A video resource can improve faculty and student accuracy in evaluating medical Spanish proficiency, allowing for improved curriculum assessment.

**Need/Rationale:** Studies have demonstrated that good language concordance between patient and provider improves quality outcomes and patient satisfaction (1,2). In the U.S., Spanish is the most commonly spoken language after English. Therefore, Spanish proficiency is a valuable skill for practice. Two-thirds of U.S. medical schools surveyed in 2015 reported offering Spanish language resources, including formal curricula, to improve proficiency among their students. There is thus strong advocacy among educators to include Spanish communication in medical curricula. However, medical language courses require significant resources which include hiring fluently bilingual professionals to teach and assess students. As with any competency, medical Spanish proficiency needs to be assessed throughout a course to track and improve student performance and document curricular effectiveness. Traditional language assessment is a complex process that includes the assessment of writing, listening and verbal communication skills with a combination of written and conversational tests which add significant burden to teaching medical Spanish during medical training. We propose the 'cool idea' that standardizing the assessment of medical Spanish proficiency by training students and faculty using a video representing different levels of proficiency will enhance both the teaching and assessment of medical Spanish.

**Methods:** We developed a standardized set of videos to represent five different levels (1 to 5) of medical Spanish proficiency during a patient encounter, using the validated InterLanguage Roundtable (ILR) one-item scale with detailed descriptors (3). The standardized videos for each of five -levels of Spanish proficiency were based on actual student performance in medical Spanish test stations where students interviewed monolingual Spanish-speaking standardized patients (SPs) and were assessed for their medical Spanish proficiency using the ILR. We invited students who demonstrated performance typical of each level to return as actors and to repeat their performance (retaining the same level of proficiency) for videotaping. We shortened each video from twelve to two to three minutes to illustrate only the core elements that distinguished each level of proficiency. We then developed a detailed written guide for each proficiency level to explain the nuances of language for both listening and speaking skills, reflecting each level of proficiency. Our goal with the cool idea is to use the videos to train students of medical Spanish to evaluate their own proficiency, to anchor their expectations of improving their own medical Spanish. If their self-assessment is accurate, then the ratings can also be used to assess course outcomes.

**Evaluation Plan/Results:** Sixty students from one PA student class will be shown the videos at entry (August 2018) and asked to rate their own ILR proficiency. Students will also be asked to rate their peers during conversations in Spanish. They will then conduct interval self-assessment of proficiency at course midpoint (March 2019) and course end (November 2019). At course midpoint all students will participate in a Spanish Objective Structured Clinical Encounter in Spanish with a Spanish-speaking standardized patient (SP) and will be rated using the ILR. The SPs will be trained using the same videos. The instructor will rate each student using the videos of the OSCE encounter. Score concordance between the students (self), SP and faculty will be calculated. We will examine the utility of the videos in improving student accuracy using the faculty score as the gold standard. We will also survey students and SPs about the usefulness of the videos in guiding proficiency development.

**Potential Impact/Lessons Learned:** Our resource has the potential to be shared on a public platform (eg., YouTube) for others to access. Future studies will address whether use of the videos will improve longitudinal tracking of proficiency acquisition in different medical Spanish courses.

**References:**


1) Flores G, Abreu M, Barone CP, Bachur R, Lin H. Errors of medical interpretation and their potential clinical consequences: a comparison of professional versus ad hoc versus no interpreters. Ann Emerg Med. 2012;60(5):545-553.
2) Gany F, Leng J, Shapiro E, Abramson D, Motola I, Shield DC, Changrani J. Patient satisfaction with different interpreting methods: a randomized controlled trial. J Gen Intern Med. 2007;22 Suppl 2:312-318.
3) Interagency Language Roundtable (ILR). Interagency language roundtable skill level descriptions for competence in intercultural communication. 2012. http://www.govtilr.org/Skills/Competence.htm. Accessed 2 August 2018.

**Developing a Case-Based Bioethics Curriculum for a Pediatrics Residency Program**

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**Idea/Problem Statement:** Implementing a bioethics curriculum for pediatric residents based on the American Academy of Pediatrics bioethics case-based teaching guide.

**Need/Rationale:** Ethical and moral issues are inseparable from the clinical practice of medicine. Pediatric residency programs frequently provide combined education on professionalism and ethics to fulfill ACGME core competency requirements. However, due to time constraints and “curricular crowding”, residents receive limited exposure to analysis of complex ethical issues that they encounter in their daily clinical work. In order to prepare residents for independent practice, foundational education in bioethical issues can provide tools for navigating future ethical dilemmas. While some may advocate role modeling or “learning on the job”, the absence of a structured curricular foundation for ethics education places resident physicians at risk of not adequately achieving this competency. The Romanell Report suggests that ethics education is best delivered in a longitudinal manner with opportunities for active resident participation. This manner of education will improve reasoning and decision-making skills. The current state of medical ethics education in pediatric residency programs suggests that more formalized training is necessary in order to adequately prepare residents for future practice.

**Methods:** Prior to initiation of the curriculum, a pre-participation survey will capture participant demographics and background experiences in ethics. The survey will also provide an opportunity to residents to share areas of interest in ethics and to demonstrate their knowledge through a modified version of the TREK-P, a validated test of resident knowledge of pediatric bioethics. The discussion groups will be adapted from topics presented in Diekema et al.’s “American Academy of Pediatrics Bioethics Resident Curriculum: Case-Based Teaching Guides” in conjunction with the ACGME core competencies in ethics for pediatrics residents. Cases adapted from this guide will be emailed to all residents prior to discussion groups. In addition, relevant AAP ethics position statements and articles will be provided. Presentation of cases will be held during noon conferences with an attending physician experienced in handling ethics cases facilitating associated discussion sessions. Sessions may take on various formats, predominantly with small group work and opportunities for discussion which allow residents to work with and learn from others. Pre- and post-discussion surveys will be administered as well, to assess how residents would ‘lean’ on various cases.

**Evaluation Plan/Results:** Attendance will be taken at sessions to determine how many residents participate in these sessions. Residents’ baseline level of knowledge in pediatric bioethics will be captured with a pre-participation TREK-P score. Following their participation in the discussion groups, residents will take another TREK-P assessment to evaluate their competency in navigating fundamental topics in pediatric bioethics. Topics will be developed in conjunction with the ACGME’s core competencies and include areas such as consent and decision-making, professionalism, and the patient-physician relationship. Resident feedback on discussion groups will be actively solicited to evaluate the effectiveness of these sessions and to tailor the sessions to areas of resident interest.

**Potential Impact/Lessons Learned:** This curriculum will formalize the AAP’s ethics curriculum in a pediatrics residency program through discussion groups and teaching sessions. Pediatric residents will gain competency in navigating ethical complexities relevant to their daily practice.

**References:**

1) Carrese, J.A., et al. (2015). "The essential role of medical ethics education in achieving professionalism: the Romanell Report." Acad Med 90(6): 744752.
2) Diekema, D.S., et al. (2017). “American Academy of Pediatrics Bioethics Resident Curriculum: Case-Based Teaching Guides.” Retrieved from https://www.aap.org/en-us/continuing-medical-education/Bioethics-Cased-Based-Teaching-Guides/Pages/Bioethics-Case-Base

3) Kesselheim JC, McMahon G, Joffe S. Development of a Test of Residents' Ethics Knowledge for Pediatrics (TREK-P). J Grad Med Educ. 2012b;4(2):242-245.

**An Evaluation of Resident Response to Joint Injection Sports Med Curriculum in Family Med Residency**

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**Idea/Problem Statement:** Introduction of a joint injection curriculum to family medicine residents and evaluate the impact on resident knowledge and treatment of joint pain.

**Need/Rationale:** The curriculum implemented during residency training of new family medicine physicians provides extensive opportunity to affect both immediate treatment decisions as well as the future treatment choices of our nation's primary care doctors. The nation's health care crisis exemplifies the need to implement innovative treatment and education of our nation's new physicians in an effort to combat morbidity and mortality on an institutional scale. Family medicine residents and physicians are on the front lines of treating musculoskeletal joint pain. Joint pain has steadily increased as our aging population increases in number and individual life expectancy's are extended. The implementation of a joint injection lecture series within a sports medicine curriculum in residency with specific training for family medicine residents in topics of joint injection for joint pain provides increased treatment options both to the patient and the physician.

**Methods:** The study will look at the newly chartered Citrus Valley Health Partners Family Medicine Residency Program located in West Covina, California. The 3-year training program currently boasts 20 full time Family Medicine Residents with an additional 10 scheduled to begin training in 2019. The resident's outpatient Family Medicine based training occurs exclusively at the Federally Qualified Health Center (FQHC), East Valley Community Health Center located in West Covina, California. Utilizing the FQHC's electronic health records, we have identified ICD-10 diagnosis codes utilized for common joint pathology and hope to cross reference those codes with CPT procedure codes relating to joint injections. Additionally, evaluation of a newly implemented sports medicine resident curriculum, including training on common joint injections, will be analyzed. Through resident/faculty workshops and didactic education consenting participating residents have been trained in joint injection indication, procedure, and technique. Resident's have been objectively tested via written multiple-choice examination prior to training, immediately after training, and one week post training. Treatment choice and resident knowledge is currently being analyzed and compared prior to and after resident training, correlating with both resident pre- and post-training knowledge.

**Evaluation Plan/Results:** Citrus Valley family medicine residents consented to being the subjects of the study and agreed to undergo additional training in joint injection indication, procedure and technique. Resident, Dr. James Pearson, in conjunction with Sports Medicine faculty, Dr. Hamed Shalikar, established the teaching joint injection curriculum. Additionally, hands on teaching was provided by Dr. Pearson and Dr. Shalikar in the model of the AAFP's joint injection workshop provided nationally at the AAFP national conference. Resident's were objectively tested on their knowledge via a 10 question multiple choice examination before, directly after and one week after the joint injection lecture and hands on workshop. Pre-lecture objective results included a mean score of 25%, median score of 25% and mode of 20%. Direct post-lecture results included a mean score of 70%, median score of 65% and mode of 70%. One week post-lecture results included a mean score of 66%, median score of 70% and mode of 60%. Data is currently being analyzed regarding pre-lecture ICD and CPT resident diagnosis and treatment. This pre-lecture data will then be compared to post-lecture resident diagnosis and treatment changes with regard to the approach to musculoskeletal pathology.

**Potential Impact/Lessons Learned:** Innovations in resident training, including implementing joint injection curriculum for residents caring for musculoskeletal joint pathology, has the opportunity to increase physician knowledge and treatment choice today and for generations in the future.

**References:**

1) Centers for Disease Control and Prevention. Living with severe joint pain. March 7, 2017; hwww.cdc.gov/features/arthritis-quality-life/index.html. Accessed September 2018.
2) National Resident Matching Program, Data Release and Research Committee: Results of the. 2017 NRMP Program Director Survey.

**Cultivating Clinical Informatics Curiosity: Launching A PGY-1 Clinical Informatics Rotation**

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**Idea/Problem Statement:** As information technology plays an increasing role in delivery of patient care, educating physicians in the importance of informatics is critical.

**Need/Rationale:** The discipline of clinical informatics cuts across all medical fields and specialties. As information technology plays an increasing role in delivery of patient care across all specialties, it becomes important to cultivate interest amongst future physicians. Grand Strand Health is a multi-facility health system located on the coast of South Carolina and has facilities throughout the area to provide quality patient care. At the center is Grand Strand Medical Center, a 369-bed acute care hospital. Grand Strand Medical Center launched its ACGME-accredited Transitional Year Residency in June 2016 with 12 interns. During the 2017-2018 academic year, an elective rotation in Clinical Informatics was launched, supervised by the program director to increase the program's elective offerings. The goal of this rotation was to expose trainees to an important field of medicine during the PGY1 year alongside preparation for their advanced specialty residencies and their careers beyond.

**Methods:** At the start of the 2017-2018 academic year, a novel four-week clinical informatics curriculum was created. Core components of the curriculum included daily didactic and discussion sections with the program director paired with independent reading and research time. "Core Content for the Subspecialty of Clinical Informatics" (JAMIA, 2009) was used by the program leadership as a blueprint for identifying topics and organizing the content approach. The primary textbook source for this elective course is the "Health Care Information Systems: A Practical Approach for Health Care Management" text. Additionally, exercises in both leadership and management are drawn from the Harvard ManageMentor Suite. At the start of each block, residents are required to choose a self-directed research area based on their clinical interest and additional primary source reading is incorporated based on the topic selection. Completion of a written scholarly product is required by the end of each rotation.

**Evaluation Plan/Results:** Transitional Year Residency offers a unique opportunity to expose individuals going into a variety of fields to a broad overview in the important field of Clinical Informatics. During the 2017-2018 academic year, 8 of the 12 Transitional Year interns (75%) chose to complete our Clinical Informatics elective. For the 2018-2019 academic year, 11 of the 12 Transitional Year Interns (92%) are enrolled in this rotations. (Through September 2018, a total of 12 Transitional Years Interns have completed the Clinical Informatics Elective). Future areas of residency for the residents completing the Clinical Informatics elective include: Anesthesia, Interventional Radiology, Diagnostic Radiology, Dermatology, Physical Medicine and Rehabilitation, Radiation Oncology, and Ophthalmology. All participants have provided formal feedback through end of rotation evaluations. The residents overwhelmingly agreed that this elective rotation was important to their residency experience and specialties of interest. The residents also universally agreed that by participating in this rotation, their knowledge base dramatically increased. An additional outcome of this rotation was the production of multiple completely independent research projects culminating in presentations at the local, regional, and national level; as well as in peer-reviewed publications.

**Potential Impact/Lessons Learned:** Clinical informatics rotations may be successfully designed and achieved in the community-based hospital setting. Ongoing tracking of outcomes related to ultimate career pursuits of trainees who complete this rotation may be an area of further research.

**References:**

1) Gardner RM, Overhage JM, Steen EB, Munger BS, Holmes JH, Williamson JJ, Detmer DE; AMIA Board of Directors. Core content for the subspecialty of clinical informatics. J Am Med Inform Assoc. 2009 Mar-Apr;16(2):153-7.
2) Wager KA, Lee FW, Glaser JP. Health Care Information Systems: A Practical Approach for Healthcare Management. San Francisco, CA: Jossey-Bass & Pfeiffer/Wiley, 2017.

**TY Tuesday: Developing a Leadership and Professionalism Curriculum for Transitional Year Residents**

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**Idea/Problem Statement:** Recognizing the need for a dedicated leadership and professionalism curriculum we created a novel, longitudinal curriculum termed “TY Tuesday.”

**Need/Rationale:** Transitional Year (TY) affords a unique clinical experience, allowing interns a glimpse of multiple disciplines as they ebb and flow throughout inpatient and outpatient settings, not as students but as physicians. TY program leadership is tasked with providing this broad-based clinical experience, as well as ensuring that the interns are professionally mature enough to move to the next phase of their training across a wide range of specialties. Recognizing the need for a dedicated TY curriculum and the importance of fostering cohesion among trainees in the program while scattered across a variety of clinical settings, we solicited feedback from our trainees and faculty members to create a novel, longitudinal curriculum termed “TY Tuesday.” Using literature and feedback, we designed our curriculum around topics of leadership, professionalism, and the business of medicine to create a dynamic and well-received offering.

**Methods:** Program Leadership began this didactic content in July 2017. Monthly two-hour sessions with all 12 transitional year residents were scheduled on Tuesdays. Sessions included internal program faculty as well as invited external guest speakers, in a combination of group discussion and reflection meetings. Topic examples include: leadership style, negotiation, practice management, networking, and mentorship. A variety of materials, from both the healthcare literature and the business world, were used for these didactic sessions. The Transitional Year Residents evaluated the impact of “TY Tuesday” (speaker quality, professional impact, and content delivery) both informally -- through verbal feedback following each session -- and through formal post-meeting surveys. The program was renewed for a second year in July 2018.

**Evaluation Plan/Results:** All 24 Transitional Year Residents (12 per class from the 2017 and 2018 starting academic years) have provided formal feedback. The residents overwhelmingly agreed that the didactic session provided curriculum that was important to their roles within the patient care team. The residents also agreed that by participating in this course, they improved their leadership skills, addressed their personal strengths and weaknesses, and left with the ability to strongly manage clinical team conflict.

**Potential Impact/Lessons Learned:** Effective leadership skills have been associated with better patient care, strong communication/interpersonal skills, and increased measurement on the ACGME Milestones. We believe that our curriculum could be replicated and implemented in a variety of medical training programs and specialties.

**References:**

1) Jardine D, Correa R, Schultz H, et al. The Need for a Leadership Curriculum for Residents. Journal of Graduate Medical Education. 2015;7(2):307-309. doi:10.4300/JGME-07-02-31.
2) Blumenthal DM, Barnard K, Frser TN, et al. Implementing a pilot leadership course for internal medicine residents: design considerations, participant impressions, and lessons learned. BioMed Central Education. 2014;11(30); 14: 257. doi: 10.1186/s12909-0
3) Sadowski B, Cantrell S, Barleski A, et al. Leadership Training in Graduate Medical Education: A Systematic Review. Journal of Graduate Medical Education. 2018;4(10): 134-148. doi:10.4300/JGME-D-17-00194.1.

**Developing Entrustable Professional Activities in Clinical Pharmacology for Entry into Clerkship**

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**Idea/Problem Statement:** This study aims at enhancing pharmacology knowledge related to common "problem drugs" to first and second-year medical students.

**Need/Rationale:** Making therapeutic decisions is a critical activity among physicians. It relies on the ability of physicians to use cognitive processes and specific knowledge in the context of clinical pharmacology. As such, the Association of American Medical Colleges (AAMC) has identified core entrustable professional activities (EPAs) as a set of vital skills and knowledge all incoming medical residents should competently demonstrate on day one of their residency. The American College of Clinical Pharmacology (ACCP) has further identified EPAs specific to clinical pharmacology that is essential for medical education. The proposed EPAs include: 1) basic pharmacokinetics and pharmacodynamics; 2) dosage adjustment for age and for organ impairment; 3) drug-drug interactions; 4) biologics, including vaccines; 5) adherence; 6) identifying, understanding, and interpreting drug information sources; 7) summarizing common problem drugs; and 8) how to work within an interprofessional healthcare team. The clinical pharmacology EPAs related to basic pharmacokinetics and pharmacodynamics and identifying common "problem drugs" are crucial for new medical residents since recent statistics regarding medication misadventures account for 700,000 emergency department visits yearly and approximately 5% of hospitalized patients have documented adverse drug events. Thus, my study aims at enhancing pharmacology knowledge related to the common "problem drugs" to first and second-year medical students.

**Methods:** I developed a definition for "problem drugs" to include drug therapies associated with: 1) drug-drug interactions; 2) serious side effects; 3) narrow therapeutic indices; and/or 4) unusual pharmacokinetics (PK). I created a list of 15 drug therapies based on literature reviews and clinical expertise. I developed an online survey to assess students' perceptions regarding their clinical knowledge of the therapies. I will create a pre/post-test to assess students' actual clinical knowledge concerning common "problem drug" therapies. My "problem drug" list will be emphasized if the drug therapies have been incorporated into cases previously developed or inserted into modular cases with an emphasis on the problematic characteristics. An educational program will be recommended to cover gaps in the curriculum based on the data from the students' evaluation. Descriptive statistics and bivariate associations will be used to analyze survey and pre/post-test results. All analyses will be performed using SPSS 22.0. An alpha level of 0.05 will be used to assess statistical significance.

**Evaluation Plan/Results:** Evaluation will be done based on students survey and knowledge evaluation by conducting pre- and post-test.

**Potential Impact/Lessons Learned:** Data from my study will help us improving pharmacology teaching at CMED and preparing our students for the clerkship and residency training.

**References:**

1) Donnenberg VS, Burris JF, Wiernik PH, Cohen LJ, Korth-Bradley JM. How to fix the dangerous lack of clinical pharmacology education in the medical profession: the generation of core entrustable professional activities in clinical pharmacology for entering
2) https://members.aamc.org/eweb/upload/core%20EPA%20Curriculum%20Dev%20Guide.pdf

**Improving Recognition of MSK Conditions through a Resident Led Coding/Diagnosis Lecture Series**

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**Idea/Problem Statement:** Improving ICD diagnoses of MSK pathologies by family medicine residents can lead to better treatment modalities and improve coding skill precision.

**Need/Rationale:** An aging population with ever increasing musculoskeletal complaints creates further demand on an already overburdened healthcare system. The primary care physician should therefore be trained to accurately code these complaints to enhance the efficiency of the system and the efficacy of treatment. By utilizing more specific coding practices, treatment can be streamlined and resources dedicated to provide better care, along with lowered costs. Imprecise coding practices are likely due to either inexperience with coding itself or misdiagnosis by the healthcare provider. By addressing the issue of imprecise coding, the physician learns the subtleties of coding, which, in turn, reflects the subtleties of diagnosis.

**Methods:** The proposed study will be implemented at Citrus Valley Family Medicine Residency Program. Family medicine residents will present 10 one-hour lectures during their didactic lecture period. Residents will select MSK cases throughout the academic year from their continuity clinic to explore concepts of identification, differential diagnoses, and coding. Case presentations will be prepared in conjunction with consultation from sports medicine faculty. As part of the resident-led presentations, specific time will be slotted to discuss diagnostic skills as well as ICD-10 coding. Residents will be asked to attach the appropriate ICD-10 codes associated with each differential diagnosis. Prior to each session, residents will be provided with an article that covers pertinent MSK coding principles. The sessions will include pre- and post-assessment. This assessment will include the selected case diagnosis and appropriate ICD-10 codes.

**Evaluation Plan/Results:** Evaluation of the study will have two components. The first component will be a pre- and post-lecture assessment. Assessments will measure diagnostic skills and residents' ICD-10 coding knowledge. Results will be trended over a six month period and feedback will be provided to each resident on a monthly basis. The second component will consist of compiling MSK related ICD-10 codes from the continuity clinics for three months prior to the commencement of the lecture series and for 6 months following the commencement. The goal would be to identify actual changes in the practice and skills of residents' coding with particular attention toward diversity in ICD-10 coding, changes in coding patterns, and coding specificity, as well as coding accuracy.

**Potential Impact/Lessons Learned:** More accurate diagnosis may lead to a pathology-directed treatment, producing better clinical outcomes. Additionally, if advanced coding practices are implemented, the affiliated institutions will likely generate greater revenues that can be later reinvested in resident education.

**References:**

1) Karen L. Tang, MD, Kelsey Lucyk, MSc, and Hude Quan, MD, PhD (2017) CMAJ Open: Coder perspectives on physician-related barriers to producing high-quality administrative data: a qualitative study. Jul-Sep; 5(3): E617–E622. PMCID: PMC5621953/ PMID: 28827414
2) Weinstein, Stuart. MD, Yelin, Edward. PhD, Watkins-Castillo. Phd. (2014) The burden of the Muskuloskeletal Diseases in the United States: The Big Picture. 4th Edition.
3) David E. Beck, MD and David A. Margolin, MD. (2007) The Ochsner Journal: Physician Coding and Reimbursement. 2007 Spring; 7(1): 8–15. PMCID: PMC3096340 / PMID: 21603473

**Data Driven Academic Programming in Urology Residency**

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**Idea/Problem Statement:** Practice guidelines are derived from evidence and experience; as should our academic programming.

**Need/Rationale:** In Graduate Medical Education, trainees are taught to analyze, interpret and integrate evidence in order to synthesize a clinical plan. In 2015, we designed a modular academic program which allows perennial adaptations according to subjective and objective outcomes. Our goal was to prospectively follow performance outcomes utilizing a curriculum that can learn and adapt based on objective data.

**Methods:** The American Urologic Association In-Service Examination (AUA ISE) is an annual exam taken by all ACGME urology residents in the US. The test is designed to provide a performance metric regarding academic progress of individual residents as well as program wide academic performance. AUA ISE performance is correlated with pass rates on the written portion of the American Board of Urology examination. The AUA ISE provides 12 educational domains and reports program performance against national averages. This provides an assessment of individual and program-wide strengths and weaknesses. In 2015, we utilized the AUA ISE educational domains to design a 12-month curriculum. We utilized the AUA University Core Curriculum as our foundational resource with cross-referenced, multimodal supplemental material corresponding AUA ISE educational domains. Over the ensuing 3 years, we assessed outcomes prospectively and longitudinally through ISE results and surveys.

**Evaluation Plan/Results:** Each AUA ISE domain was assigned to monthly units and the 12-month academic calendar was arranged in a prioritized order focusing on lowest performance topics in closest proximity to the AUA ISE. Grand rounds presentation topics and journal club discussions were focused in each monthly unit on their corresponding educational domain. Peer adjusted performance metrics were utilized to provide anonymity with regards to performance, and control for variance in specific domains across serial examinations. In the first year of programming (2015/2016), standardized testing improvement was demonstrated primarily in the area of prioritized units (Sexual Dysfunction, Endocrinopathy, Fertility Problems: + 17%; Trauma & Fistulae: + 13%; Obstructive Uropathy, Laparoscopy, Robotic Surgery: + 9%). Decreased standardized testing performance was demonstrated in the least prioritized units (Calculous DIsease: - 16%; Urinary Diversion: - 7%). In the ensuing academic year (2016/2017), areas of prioritization did not predict performance improvements and areas of prior lower performance persisted.

**Potential Impact/Lessons Learned:** The hypothesis was that modular programming that is adaptable and targets program-wide needs annually would improve ISE performance. Our study suggests that evidence based academic programming is a useful adjunct in developing curriculum, however thorough curricular review remains a cornerstone.

**References:**

**Effectiveness of a Novel Curriculum in Pediatric Developmental Screening**

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**Idea/Problem Statement:** Currently in Canada, General Pediatric (GenPeds) residents do not receive adequate training in development and behavior (1).

**Need/Rationale:** Proper use of developmental screening instruments is crucial to detect developmental disorders in children, yet there is a gap between preparedness from training in Canada and the importance of child development to clinical practice (1-3). Our needs assessment interviews, prior to the new curriculum, indicated that preceptors in our program did not use screens and residents often indicated identification of red flags and referral resources as the most important development personal learning objectives. The purpose of the novel, longitudinal, curriculum was to allow GenPeds residents to make experience-based decisions regarding screening in their future independent practice. We evaluated the curriculum's effectiveness for learning screening knowledge and skills; future evaluation will survey graduates regarding screen use compared to graduates prior to curriculum implementation.

**Methods:** All 1st, 2nd, and 3rd year residents in the University of Alberta (GenPeds) residency program participated in the curriculum (2016-18, n=44). Curriculum interventions included a high volume screening practice day in 1st and 3rd year Developmental (DevPeds) rotations and interactive, case-based teaching sessions on scoring PEDS (Parents' Evaluation of Developmental Status) + PEDS:DM (Developmental Milestones), managing results of positive developmental screens, and giving anticipatory guidance on development and behavior concerns. Teaching was given at the start of the GenPeds program and on both DevPeds rotations. Five Short Answer Question (SAQ) exams on screening and anticipatory guidance, followed by feedback, were given for formative assessment; one SAQ exam was given at 4 timepoints (at the start of 1st year immediately following teaching and again at each end-year); 4 other SAQ exams were given at start and end of DevPeds rotations (4 timepoints), for a total of 8 exam timepoints during the GenPeds program. A survey to assess resident attitude regarding screen use was given at end-year.

**Evaluation Plan/Results:** Evaluation objective was to compare knowledge and skills between curriculum residents and a control group (medical students and GenPeds residents from a different program, n=14). We used t-tests comparing resident to control mean total scores and Pearson's chi-squared test comparing percentage of passing scores. Results showed that intervention residents consistently outperformed controls. Specifically, resident scores were significantly greater than controls' in both screen scoring and managing results of positive screens, at 7 timepoints (for 1st year starting DevPeds, there was no difference in management). Survey results revealed that the curriculum fostered resident proficiency and plan to screen in future practice.

**Potential Impact/Lessons Learned:** This curriculum package effectively increased knowledge and skills in GenPeds residents and could serve as a model for programs wishing to develop a screening curriculum.

**References:**

1) Amin HJ, Singhal N, Cole G. Validating objectives and training in Canadian paediatrics residency training programmes. Med Teach. 2011; 33:e131-44.
2) Canada. Human Resources and Skills Development Canada. Disability in Canada: A 2006 Profile. Ottawa, Ontario: Human Resources and Skills Development Canada; 2011.
3) Kershaw P, Warburton B, Anderson L et al. The economic costs of early vulnerability in Canada. Can J. Public Health. 2010; 101 (Suppl 3): S8-S12.

**Medical Resident Perceptions of Quality Improvement and Patient Safety**

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**Idea/Problem Statement:** There is uncertainty surrounding the depth of quality improvement and patient safety in residency training and how receptive residents are to the topics (1-3).

**Need/Rationale:** Quality improvement and patient safety (QIPS) is an important component of the healthcare system and there is an increasing demand to incorporate these topics and methods into residency training. Furthermore, residents are vital to healthcare delivery. As frontline workers, their opinions are valuable in helping to improve clinical outcomes. The Accreditation Council of Graduate Medical Education (ACGME) only requires residents be involved in QIPS activities, but to what extent remains elusive. Gathering the outlook of residents as to how essential they find certain QIPS activities would be a worthwhile endeavor for academic programs. Based on these viewpoints, residency programs can begin to understand how residents find quality improvement and patient safety activities to be beneficial to their training.

**Methods:** The Resident Perception of Quality Improvement and Patient Safety (RP-QIPS) survey was developed to gather a resident's perception on how necessary certain QIPS activities were to residency training. The specific statement that medical residents were instructed to reflect on before responding was, "please consider how you feel these topics are essential to your training during residency". The survey instrument comprised of 15 questions, which were devised from the current quality improvement and patient safety curriculum delivered to internal medicine residents over the past two academic years. Moreover, the body of questions best exemplifies the Internal Medicine Residency Program's interpretation of the ACGME's core competencies of practice-based learning and improvement and systems-based practice. The rating scale used in the survey was a 4-point Likert-type scale consisting of mostly not essential; somewhat not essential; somewhat essential; and mostly essential. The survey data was analyzed through creation of a Rasch model, which uses both mathematics and theory to measure a single latent trait. Moreover, the hallmark of Rasch modeling is in constant evaluation of the probability of the respondent to answer a question correctly and the difficulty of the survey item.

**Evaluation Plan/Results:** The survey was electronically distributed to 37 medical residents via Survey Monkey. 22 medical residents completed the survey online, translating to a 59.5% response rate. Using conventional Rasch modeling procedures, the item and respondent reliability indices, rating scale, and dimensionality were evaluated and readjusted throughout the analysis. All surveyed residents found activities involving practical application and/or experiential learning as being essential. These activities included understanding how to report patient safety events, participating in project-based teams, serving on hospital committees, providing solutions to patient safety problems, mortality review, and conducting a root cause analysis. Furthermore, as the tasks become more technical in nature, medical residents are less likely to perceive these as essential to their training. For example, certain activities such as learning about the nuances of different quality methodologies would be more essential than learning how to read advanced quality tools, such as value stream maps, control charts, or Pareto charts. Most residents found constructing both a fishbone diagram and flowchart to be more relevant to their training than the aforementioned technical tools. Overall, 35% of residents agreed that all 15 items were essential to their residency training.

**Potential Impact/Lessons Learned:** While this pilot study represents an early exploration into determining essential QIPS topics and activities, subsequent surveys should be conducted to develop a standardized resource to ease medical residency programs in creating their own curriculum.

**References:**

1) Butler JM, Anderson KA, Supiano MA, Weir CR. "It Feels Like a Lot of Extra Work": Resident Attitudes About Quality Improvement and Implications for an Effective Learning Health Care System. Acad Med. 2017;92(7):984-990

2) Hess BJ, Johnston MM, Lynn LA, Conforti LN, Holmboe ES. Development of an instrument to evaluate residents' confidence in quality improvement. Jt Comm J Qual Patient Saf. 2013;39(11):502-10.
3) Spraker MB, Nyflot M, Hendrickson K, Ford E, Kane G, Zeng J. A survey of residents' experience with patient safety and quality improvement concepts in radiation oncology. Pract Radiat Oncol. 2017;7(4):e253-e259.

**WE WILL: Workshops to Promote Female-Identifying Leadership in Medicine through Mentorship**

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**Idea/Problem Statement:** A series of workshops to cultivate professional development and provide opportunities for female-identifying medical students to find mentors.

**Need/Rationale:** 2017 marked the first year that more women enrolled in medical school than men (1). Yet, while female representation in medical classes has been on the rise, women continue to be underrepresented in positions of leadership in medicine (2). We created WE WILL to provide a platform for women to support women. Through workshops and networking events we help our students cultivate skills in professionalism and connect female-identifying medical students at the University of Utah to female physicians at our institution, providing them with invaluable mentorship and support to become the leaders of tomorrow.

**Methods:** WE WILL was created to support female-identifying medical students. Our programs are as follows: 1) Roundtable Luncheon. During this one-hour session students are provided with the names and specialties of physicians in attendance and can choose two with whom they wish to speak. Together with a small group of five students they can then spend twenty minutes interacting with each physician; 2) Mentorship Workshop. This is a hands-on one-hour session where first- and second-year students learn the ‘Do’s and Don'ts’ of being a good mentee and work together with workshop leaders to draft and send out a letter to faculty from whom they wish to receive mentorship. Prior to the workshop students can state what areas they wish to receive guidance in (i.e., specialties, academic medicine, research, etc.) Upon attendance they will be provided with the names of faculty who have shown interest in mentoring students in those fields; 3) Women in Medicine Workshop. This is a half-day event where female-identifying students (MSI - MSIV) can rotate through four twenty-minute stations designed to foster discussion around the unique challenges of entering medicine as a woman. The station topics are: Mentorship; Navigating Your Career; Work-Life Balance; and Self-Advocacy. Each station is run by a group of two to three female attendings or residents and thus provides students with the opportunity to network with strong female role models.

**Evaluation Plan/Results:** Each event held by WE WILL will be evaluated by careful counting of attendance. Comments and recommendations for improvement will be gathered via electronic survey forms that are sent to all attendees. Efficacy of WE WILL events will be assessed by surveying attendees to see whether or not they have developed a mentee-mentor relationship with the residents and attendings present at WE WILL events.

**Potential Impact/Lessons Learned:** Through mentorship, implementation of these workshops will help female-identifying medical students develop the skills and confidence needed to navigate medicine as a woman and seek roles in medical leadership.

**References:**

1) Association of American Medical Colleges. More Women Than Men Enrolled in U.S. Medical Schools in 2017. Washington DC: Association of American Medical Colleges. 2017 Dec. Web.
2) Ellinas, E. H., Fouad, N., & Byars-Winston, A. Women and the Decision to Leave, Linger, or Lean In: Predictors of Intent to Leave and Aspirations to Leadership and Advancement in Academic Medicine. Journal of Women’s Health. 2018 Mar;27(3), 324–332. https

**Medical Student Reflective Writing as Part of an Integrated Maternal-Child Health Assignment**

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**Idea/Problem Statement:** A brief, integrated assignment to promote curricular integration, facilitate medical student reflection, and encourage professional development.

**Need/Rationale:** In 2010, the Carnegie Foundation for the Advancement of Teaching called for medical students to connect formal knowledge of the basic, clinical, and social sciences with experiential learning, and to “understand patients, their experiences, and their care more holistically”.1 Thus, in additional to transmitting formal knowledge, clinical learning should expose learners to the patient perspective and experience in order to have a lasting impact on the student’s professional identity. This goal can be difficult to achieve, however, especially in a busy clinical setting where opportunities for explicit student reflection and growth may be limited. In this work, we assessed a novel assignment intended to augment a new maternal-child health integrated curriculum. The aim of the intervention was to introduce students to the neonatal intensive care unit while providing opportunity for explicit reflection and facilitating the development of the student’s professional identity.

**Methods:** During a session in the neonatal intensive care unit (NICU), students completed a brief, two-part assignment. The first component consisted of a short worksheet in core neonatal topics where students considered aspects of neonatal critical care including respiratory support and resuscitation, access and nutrition, surgical issues, and genetic syndromes. Students completed this aspect of the assignment independently and then reviewed their answers with an available resident. For the second component of the assignment, students were paired by NICU staff with a primary caregiver (usually the mother) to discuss their experience with pregnancy, delivery, and newborn care. We used qualitative methods to analyze a convenience sample of 166 narratives completed between fall 2016 and summer 2017. We examined Depth of Reflection using a previously-validated modified Bloom’s Taxonomy, scoring reflections on a three tier scale: “Knowledge and Comprehension” (Level I), “Analysis” (Level II), and “Synthesis and evaluation” (Level III).2 Further, we used a constant comparison method based on grounded theory to assess the scope of prenatal and postnatal topics students elicited by the reflective writing piece. This mixed-methods approach allowed us to evaluate both quality and content of student reflection to determine how our intervention functioned.

**Evaluation Plan/Results:** We found that 30% of student reflections achieved Level I Depth of Reflection (“Knowledge and Comprehension”), 35% achieved Level II (“Analysis”), and an additional 35% achieved Level III (“Synthesis and Evaluation”). Despite our students’ brief experience, this level of reflection was comparable with previously reported data for students participating in a longitudinal reflective writing experience.2 Thematic coding revealed six major themes: (1) Conception, Pregnancy, and Delivery Experiences, (2) Positive Support Structures, (3) Barriers and Stressors to Care, (4) Future Plans, (5) Unexpected Complications, and (6) Student Career and Professional Considerations. The impressive diversity of themes on maternal-child considerations suggests that students were exposed to a wide range of patient perspectives, experiences, and values. Our analysis demonstrates that a novel, integrated, maternal-child health reflective writing assignment was successful in eliciting high quality reflection while also exposing students to core themes of the pregnancy and peripartum experience. Further, our findings suggest that a reflective writing experience can be utilized as an educational tool to promote curricular integration, individualize students’ learning experience, and facilitate professional identity formation.

**Potential Impact/Lessons Learned:** With regards to medical school curriculum design, results from this study suggest that short, student-driven assignments, when strategically placed in an integrated environment, may provide enough structure to accomplish both knowledge acquisition and meaningful reflection.

**References:**


1) Irby DM, Cooke M, O'Brien B. Calls for reform of medical education by the Carnegie Foundation for the Advancement of Teaching: 1910 and 2010. Academic Medicine. 2010;85(2):220-227.
2) Plack MM, Driscoll M, Marquez M, Cuppernull L, Maring J, Greenberg L. Assessing reflective writing on a pediatric clerkship by using a modified bloom's taxonomy. Ambulatory Pediatrics. 2007;7(4):285-91.

**Are the Key Concepts of CanMEDS Professional in the Medical Student Curriculum at the U of Alberta?**

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**Idea/Problem Statement:** To improve continuity across the educational continuum there has been a movement to include CanMEDS professional role in the medical school curricula

**Need/Rationale:** The Royal College of Physicians and Surgeons of Canada describes key concepts of the "professional" physician using the CanMEDS framework. The main purpose of the CanMEDS framework is to define the necessary competencies for all areas of medical practice and provide a comprehensive foundation for medical education and practice in Canada (1). To promote adequate progression across the continuing education, there has been a movement to include the CanMEDS roles in medical school curricula and to be part of re-certification and evaluation of practicing physicians. To assess this process within a medical school, we examined one specific CanMEDS role, the "professional," to determine if more than medical expert was included within the required curriculum. Our study question was when, how, and what key concepts of the "professional" CanMEDS role are taught to medical students at the University of Alberta?

**Methods:** A literature search was performed using keywords of professional, curriculum, teaching, CanMEDS, medical student, and medical school. No studies linked CanMEDS "professional" concepts to an undergraduate medical school curriculum, or explored when and how concepts were taught. We searched the medical school curriculum learning management system database for key concept keywords, reviewed objectives, teaching method, and teaching content. Two research team members (ADC and PS) individually categorized teaching content into CanMEDS "professional" key concepts; final categorization decisions were decided by consensus.

**Evaluation Plan/Results:** Every key concept of the CanMEDS "professional" was taught in the undergraduate medical curriculum, most often during the first two pre-clerkship years; concepts were more sporadic in the final two clerkship years of the four-year program. Only 15/28 of the key concepts were taught in each of the four years. Of these, altruism was taught the least often; it was only included in the first year. Medico legal frameworks governing practice, bioethical principles and theories and social accountability were the most frequent key concepts taught in the curriculum. Key concepts of the CanMEDS "professional" role are included in a medical school curriculum; however, they are most often found during the pre-clerkship years.

**Potential Impact/Lessons Learned:** Review of where and when to teach CanMEDS key concepts may aid in building longitudinal medical student professionalism curricula, aid in professional identity formation, and frame the concept of the CanMEDS "professional" within the medical student before the start of residency.

**References:**

1) Royal College of Physicians and Surgeons of Canada, CanMEDS 2015 Framework. Available at: http://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-role-professional-e
2) Cruess R, Cruess S, Steinert Y. 2009. Teaching medical professionalism. New York: Cambridge University Press
3) Bryden P,Ginsburg S, Kurabi B, Ahmed N. 2010.Professing Professionalism: Are we our own worst enemy? Faculty member's experiences of teaching and evaluating professionalism in medical education at one school. Acad Med; 85:1025-1034.

**Establishing a Residents as Teachers Curriculum at a New Residency Program in a Community Hospital**

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**Idea/Problem Statement:** Assess clinical teaching abilities of residents in a new residency program to gauge instructional needs and establish a Residents as Teachers syllabus.

**Need/Rationale:** Varied responsibilities are assumed during graduate medical education. A vital role is being a teacher. As residents progress in their training, they become responsible in educating the new class of interns, medical students, patients, and patient families. Prior studies have demonstrated that residents receive little or no formal training on how to effectively teach. At this time, we have subjectively noticed that the residents generally do not provide significant teaching to medical students. Currently, the ACGME residency review committee mandates only psychiatry residents to obtain training in teaching skills; however, the Liaison Committee on Medical Education (LCME) states that residents should; “participate in teaching students” and “be prepared for their roles as teachers and evaluators.” However, minimal guidance is provided on how to implement or establish a curriculum to train residents, providing residency programs the opportunity to be innovative. The BEST (Bringing Education and Service Together) is an interdisciplinary "service learning" project for resident physicians with an underlying concept to cultivate residents into better physicians by learning through service - to their multicultural patient populations through better communication skills, and to their learners through better teaching skills. Most important, participating residents will serve their own educational needs through self-description of their training, proficiency, and comfort as teachers.

**Methods:** The BEST curriculum consists of program leadership with assistance from faculty who participate in didactics and leading workshops that are delivered to all post-graduate levels of internal medicine residents. This longitudinal curriculum is delivered on a quarterly basis, with two-to-three hour sessions that cover a variety of themes covering the concept of the teachable moment, role as team leader and manager, giving constructive feedback and interactive lectures. Through a balance of didactics and workshops, these sessions provide instruction on the development of skills required of a medical educator including the five-step microskills model of clinical teaching; mini-interactive small group workshops were also conducted to reiterate and enhance recently acquired skills. To date, the three sessions delivered have included providing constructive feedback, teaching to different levels of learners, concept of the teachable moment, interactive mini-lectures, and running inpatient work rounds as team leader and manager.

**Evaluation Plan/Results:** The sessions are integrated into the residency conference curriculum as didactic workshops, given quarterly. Educational materials are available through the RAT skills website created by the BEST project team and paper handouts are also distributed prior to the session. Pre- and post-surveys will be conducted to provide qualitative and quantitative data to assess the efficacy of these sessions. In addition, program leadership intends to use the residents’ training through these sessions in creating a resident-led lecture series to improve presentation and teaching skills. We also intend to anonymously survey the medical students on their experience in addition to their evaluation of the residents.

**Potential Impact/Lessons Learned:** Improving student clinical education will help students in their future roles as residents and eventually attending physicians. Strong teaching will help establish our new Internal Medicine program as a desired training institution. Potential application to new residencies at a Community Hospital.

**References:**


1) Wachtel JK, Greenberg MR, Smith AB, Weaver KR, Kane BG. Residents as Teachers: Residents' Perceptions Before and After Receiving Instruction in Clinical Teaching. The Journal of the American Osteopathic Association. 2013;113(1):23-33.
2) Morrison EH, Rucker L, Boker JR, et al. A pilot randomized, controlled trial of a longitudinal residents-as-teachers curriculum. Academic medicine: journal of the Association of American Medical Colleges. Jul 2003;78(7):722-729.
3) Morrison EH, Rucker L, Boker JR, et al. The effect of a 13-hour curriculum to improve residents' teaching skills: a randomized trial. Annals of internal medicine. Aug 17 2004;141(4):257-263.

**Interns As Teachers: Improving Intern Confidence and Satisfaction in Medical Student Education**

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**Idea/Problem Statement:** Residents play a key role in the clinical education of medical students; however, little education is provided to interns to aid them in this role.

**Need/Rationale:** As interns at a busy institution, we felt unprepared to incorporate medical student teaching into our workflow. We performed a needs assessment at our institution, and found that many interns felt similarly, with barriers to teaching including time restraints, low confidence in teaching skills, and a limited repertoire of teaching topics when time became available to teach. In our needs assessment we surveyed interns to ask what topics they would like formal education on and they selected one-liners, presentations and creating a differential diagnosis. By providing an organized and practical curriculum on teaching, which incorporates specific teaching tools that can be integrated into the busy workflow of inpatient ward rotations; we hope to increase intern confidence and satisfaction in teaching medical students. Secondarily, we hope to increase the length and frequency of medical student teaching experiences.

**Methods:** Two interventions were incorporated into pediatric residency scheduled noon conference lectures at Children's Hospital Los Angeles (CHLA). The first intervention, which occurred in January, focused on teaching interns how to break down the components of a one-liner for medical students and how to explain the premise and components of a SOAP presentation. This primary intervention was an hour in length and included both lecture-based didactics as well as breakout sessions to reinforce learning points through role playing. The second intervention taught interns how to provide medical students with a systematic approach to the differential diagnosis. This session occurred in April and was 30 minutes in length. Interns were surveyed in November, prior to the start of the study, in March, in between the two interventions, and in July at the completion of the study. Data was collected on intern confidence and satisfaction in their teaching using Likert scale questions ranging from "strongly disagree" to "strongly agree" as well as additional questions focused on time spent teaching. Data was analyzed using analysis of variance (ANOVA) when comparing the sum of multiple survey questions and unpaired t-test when comparing mean of individual survey questions. P-values $<0.05$ were considered significant. If a significant difference was found, further analysis was done with Games-Howell test to determine where differences lied.

**Evaluation Plan/Results:** A total of 22 pediatric interns were surveyed prior to the intervention, 19 were surveyed after the first intervention and 18 were surveyed after the final intervention. A total of 6 questions in the survey focused on intern confidence and satisfaction in their teaching. The mean of the sum of these questions was 3.37 prior to any intervention, 3.88 after the first intervention and 3.65 at the end of the study. Using ANOVA, we found a significant difference between the groups ($p=0.012$). On further analysis, the significant difference was present between the pre-intervention and post first intervention surveys ($p= 0.008$). There was no statistically significant difference present between any group and post final intervention surveys. When looking at time spent teaching, there was a statistically significant increase in the amount of time interns reported teaching medical students ($p=0.041$).

**Potential Impact/Lessons Learned:** Overall, our curriculum increased intern confidence, satisfaction and time spent teaching after our primary intervention; however, the impact waned over time, indicating there might be benefit in reinforcing principles. To prevent this, we have developed a guidebook for interns to reference.

**References:**

**Utilizing ACGME Competencies Framework as an Approach for Faculty and Resident Development**

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**Idea/Problem Statement:** Developing awareness of competencies essential for success as a medical educator for GME-naïve faculty to incorporate teaching and learning strategies.

**Need/Rationale:** There has been an increase in new residency programs as a strategy to address the national and/or local physician shortage. This increase has been primarily at community hospital settings. Most medical faculty receives little-to-no training about how to be effective teachers, even when they assume educational leadership roles. Due to the challenge of recruiting experienced residency faculty to a community hospital, providing faculty development for basic teaching and learning skills to existing community physicians will aid in filling this deficiency. Teaching as a competency concept model using ACGME identified physician competencies to define critical skills for medical educators will help promote a culture of effective teaching and learning. In addition, improving the quality of relationships between faculty and residents will directly increase the efficacy of faculty teaching and mentoring efforts. To cultivate this relationship, resident input and participation will be required.

**Methods:** We plan to set up a dedicated faculty development series to supplement the community-based physician's knowledge, skills and attitudes toward teaching in order to guide them into incorporating teaching and learning strategies with residents. Conducting these sessions in an inter-specialty group setting will allow enhancement of clinical collaboration among faculty and residents. As most of the residents undergo clinical rotations on wards, the primary focus is to ensure the hospitalist group and residents will be subjected to the faculty development sessions.

**Evaluation Plan/Results:** The participating faculty and residents will complete a before and after session survey created utilizing the competencies framework established based on the ACGME competencies for medical educators. In addition, the residents will evaluate the faculty and the interns will evaluate the senior residents using the same survey. This will allow comparison between an individuals perception of their competency versus the learners perception. This will hopefully promote dialogue about improving medical educator training, development, and outcomes.

**Potential Impact/Lessons Learned:** The goal is to develop exemplary faculty-resident relationships to promote a culture of effective teaching and learning. It will also increase attention to the quality of medical training and physician evaluation. May provide faculty development framework for other new community hospital residencies.

**References:**

1) Srinivasan M, Li ST, Meyers FJ, et al. "Teaching as a Competency": competencies for medical educators. Academic medicine : journal of the Association of American Medical Colleges. Oct 2011;86(10):1211-1220.
2) Steinert Y, Mann K, Anderson B, et al. A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: BEME Guide No. 40. Medical teacher. Aug 2016;38(8):769-786.
3) Beckman TJ, Lee MC. Proposal for a collaborative approach to clinical teaching. Mayo Clinic proceedings. Apr 2009;84(4):339-344.

**Microaggressions in the Learning Environment: A Systematic Review**

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**Idea/Problem Statement:** To report on a systemic review of microaggressions in the learning environment

**Need/Rationale:** Microaggressions are defined as brief commonplace, daily, verbal, nonverbal, and environmental slights, insults, invalidations and indignities, intentional or unintentional, directed toward a marginalized group. Microaggressions are categorized into: microassaults, microinsults, and microinvalidations. A microassault is usually a conscious, deliberate and explicit derogation that is meant to hurt the intended victim through name-calling, avoidant behavior, or purposeful discriminatory actions. Some examples include using racial epithets, discouraging inter-group interactions, being purposefully ignored by a sales clerk, and displaying symbols of hate, such as a swastika. Microinsults are subtle snubs with a hidden insulting message to the recipient that is rude, insensitive or demeaning to a person's heritage or identity. Microinvalidations are communications that exclude, negate, or nullify the psychological thoughts, feelings, or experiential reality of a person from a minority group.

**Methods:** A systemic review using PubMed, EMBase and Google Scholar on microaggressions in the learning environment was performed utilizing a modified PRISMA outline.

**Evaluation Plan/Results:** Of 145 microaggressions articles analyzed, 10 articles from 1998-2015 related to the learning environment were used for this review. Topic categories were: minority microaggressions experience in the classroom N= 5, coping mechanisms for microaggressions N=2, difficult racial dialogues in the classroom N=3. Study designs were: focus group N=4, surveys/interviews N= 4 and consensual qualitative research N=2. Number of subjects ranged from 8-68 in qualitative designs and from 126 to 2323 in survey study designs. Subjects were mainly college students, but also included graduate students and academic faculty, comprising mainly African-American, Non-Hispanic whites and Latina ethnicity. All studies occurred in major American colleges. The findings showed that microaggressions were prevalent and "invisible" in colleges; with students of color seemingly worn down by the need to engage in ongoing strategies in order to confront the inherent associated stresses. Difficult racial dialogues were characterized by intense emotions in both professors and students that interfered with a successful learning experience. Dispositional forgiveness, high ethnic social connectedness and tolerance of uncertainty were associated with decreased anxiety, stress, and depression associated with microaggressions

**Potential Impact/Lessons Learned:** Microaggressions are prevalent in the learning environment and are associated with ongoing major negative impact on the learning environment. Studies on microaggressions in medical education are urgently needed.

**References:**

1) Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: implications for clinical practice. American Psychologist, 62(4), 271.
2) Allen, W. R., & Solorzano, D. (2000). Affirmative action, educational equity and campus racial climate: A case study of the university of Michigan law school. Berkeley La Raza LJ, 12, 237.
3) Burrow, A. L., & Hill, P. L. (2012). Flying the unfriendly skies? the role of forgiveness and race in the experience of racial microaggressions. The Journal of Social Psychology, 152(5), 639-653. doi:10.1080/00224545.2012.686461 [doi]

**Data Visualization for Decision-Making in Medical Education**

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**Idea/Problem Statement:** Data are not neutral; thus, design decisions should be unpacked. Dashboards can serve as test cases.

**Need/Rationale:** Data visualizations (DVs) are ways of representing information about organizational and human performance. Their use and traction in medical education is a recent development that requires more careful consideration. A study on the visualization of curricular data in medical education, for example, noted that use of DVs allowed “teachers and directors to easily perceive the structure of the medical curriculum, define how each part coexists as part of a network of different curriculum parts and reason for its use and importance in the curriculum.” (1) The literature also describes ways to represent big data in medical education (2). Consistently absent from the knowledge-base, however, were discussions of design issues that informed the development of DVs to begin with and how such challenges were addressed. We posit that DVs are important in supporting improved decision-making among various stakeholder groups within the medical education community writ large. However, data are not neutral. As such, it is equally important to consider ways in which analytics are created. We set out to document and describe the process of developing DVs that support data-driven communication and collaboration. We place particular emphasis on how we have applied principles from Cognitive Psychology, Management, and Program Evaluation throughout this venture and the ways in which this interdisciplinary perspective supports information use and dialogue.

**Methods:** The process of visualizing student and faculty reports involved cleaning raw data, and developing appealing visualizations of it. To prepare the data for visualization, we manipulated it with a cleaning tool named Alteryx. This program allows users to make workflows that quickly manipulate large excel files so that they may be uploaded to visualization software. The visualizations were created with the software, Tableau. This process was largely iterative and required a collaborative effort with faculty and administrative stakeholders. There was a period of trial and error that involved rounds of prototype development, testing, and collection of feedback to achieve a satisfying product. It followed an emergent strategy where the final outcome and goal was realized after multiple ideas and visual representations of data were considered. We finally represented quantitative ratings with interactive bar graphs, as they are effective yet concise ways to convey data. We avoided pie charts, as stakeholder feedback indicated that both angle and area are visually difficult to interpret. We used a comprehensive, interactive dashboard report to portray our visuals. This reduced clutter and information overload while containing all relevant details accessible by clicking various parts of the visual. The dashboards are distributed to the faculty and administrative stakeholders, and will continue to be revised based upon formal feedback.

**Evaluation Plan/Results:** The dashboards will be updated in response to feedback obtained through focus groups with two types of stakeholders. Educator groups will be made up of faculty who will respond to questions about whether the information in the dashboards influences their instruction. Administrator groups will include faculty development staff, and the deans of curriculum. Guiding questions for this group will focus on how data is used to influence policy. In order to evaluate outcomes, we will track variables such as the number of times users access the dashboards from the server. To determine the effect dashboards have on policy, we will analyze minutes from curriculum meetings to see when, and in what context the dashboards are discussed; and if action items result from their discussion. Lastly, the support of dialogue and collaboration will be analyzed via a survey gathering reports of the frequency of communication facilitated by the dashboards across the spectrum of educators and administrators.

**Potential Impact/Lessons Learned:** Literature on DV indicates it leads to better data understanding and use. Broad swaths of stakeholders can benefit from and leverage carefully designed DVs to affect change. Sharing the process of developing a useful DV may open dialogue for further expansion of this strategy in medical education.

**References:**


1) Vaitsis, C., Nilsson, G., & Zary, N. (2015). Visual analytics in medical education: Impacting analytical reasoning and decision making for quality improvement. Studies in Health Technology and Informatics, 210, 95-99. DOI: 10.3233/978-1-61499-512-8-95.
2) Vaitsis et al. (2014). Visual analytics in healthcare education: Exploring novel ways to analyze and represent big data in undergraduate medical education. PeerJ, 2. DOI: 10.7717/peerj.683.

**Stroll n' Roll: Addressing the Postpartum Health Experience in a Latinx Community**

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**Idea/Problem Statement:** To address the postpartum function and experience in Latinx women through a curriculum that provides psychoeducation and physically active experiences.

**Need/Rationale:** Studies on post-partum care have demonstrated a gap in knowledge on the postpartum health experience in women after the 6 or 8 week medical visit (1). Research has further indicated that weight gain during pregnancy in Latina/Latin-x women has shown to be correlated with weight gained during gestation, ethnicity, depression, anxiety, poor education on nutrition, and prenatal physical activity (2,3). Studies further state that excess weight gain during pregnancy and the failure to lose weight after giving birth is a predictor of long term weight change and increased BMI in women up to 10 years postpartum (3). Research strongly supports an integrative approach to postpartum healthcare that addresses wellness, well-being, nutrition, and maternal mental health at 6-8 weeks postpartum, when maternal identity is being informed by the adjustment experience to motherhood either as a first time mother or mother to multiple children. The psychological effects of this transition can sometimes lead to increased weight gain, depression, anxiety, decreased activity, and poor nutritional choices (1,2,3). To address the need of more education in Latinx postpartum women, we will implement an educational and physically interactive program titled Stroll n' Roll for women who are 6 weeks postpartum. Our goal is to increase understanding, engagement, and implementation of physical, social, and mental health wellness, as well as create supportive environments that will empower women in the community to create similar grassroot support activities.

**Methods:** Women from the Family Care Specialists clinic ages 18-40 will attend a 90 min group session in Fall 2018. The biopsychosocial and physically active experience will be facilitated by behavioral science faculty, a women's health coordinator, medical residents, a nutritionist, and a kinesthetic trainer. The women will participate in on-site educational and physically active exercises and activities. The topics will include: Physical health, nutrition, psychosocial function, family planning, physical activity, mindful parenting, and navigating community resources. Session activities will include: videos, music, art, processing discussions, group/pair activities, mindfulness (meditation and parenting), walking with strollers. By the end of the eight week program, the participants should be able to: 1) Develop a plan on how to achieve mental and physical well-being and promote it in others; 2) Explain how their well-being influences their approach to health; 3) Identify ways in which they can continue to create or participate in activities that nurture physical and mental well-being in their communities.

**Evaluation Plan/Results:** Participants will complete a pre- and post-intervention self-report to assess for depression, anxiety, the relevance of the activities, and the quality of instruction. The self-report measures to be utilized are the Beck Depression Scale-II, the Beck Anxiety Scale, and the Edinburgh. BMI will also be measured at the beginning and end of the program. Participants' learning and behavior will be assessed through discussion of a self-developed plan pre- and post-intervention.

**Potential Impact/Lessons Learned:** Recognizing the need for postpartum care in Latinx women, we need to create comprehensive experiences in integrative healthcare systems that educate and empower women. If successful, our Stroll n' Roll program could be a comprehensive model generalizable to all patient centered medical homes.

**References:**

1) Cheng, C., Gowles, E., Walker, L. Postpartum Maternal Health Care in the United States: A critical review. The Journal of Perinatal Education, 2006, 15 (3): 34-42.
2) Keller, C., Todd, M., Ainsworth, B., Records, K. , Vega-Lopez, S., Permana, P., Coonrod, D., Nagle Williams, A. Overweight, Obesity, and Neighborhood Characteristics among Postpartum Latinas Journal of Obesity Volume 2013, Article ID 916468, Retrieved S

3) Rooney, B.L., Schauberger, C.W. Excess pregnancy weight gain and long-term obesity: one decade later. Obstetrics and Gynecology, vol. 100, no. 2, pp. 245–252, 2002.

**HealthCORE: Innovating the Health Professions Pipeline for Underrepresented Students**

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**Idea/Problem Statement:** Despite the need for a representative health workforce, medical student demographics and corresponding pipeline training programs remain unchanged.

**Need/Rationale:** A handful of previous studies examined the success of programs in attracting underrepresented college students to the health professions, yet few researchers have focused on curricular pedagogy to cultivate interest among such students during their high school years (1,2). Health Career Opportunities Reimagined (HealthCORE) offers enriched activities, clinical exposure, and longitudinal advising in a comprehensive health professional pipeline model for rising sophomores to seniors in high school. An initial two-week summer intensive program inspires students using several health disciplines, including many not covered in traditional pipeline programs such as global health, research, medical design, healthcare policy, clinical practice, and narrative medicine. Students then transform their interests into practice through a yearlong longitudinal experience in the community, from volunteering to shadowing physicians to research internships.

**Methods:** All students enrolled in the first cohort of HealthCORE students (n=23) were asked via email to complete course surveys via a password-protected online form both immediately prior to and at the conclusion of the course in 2017. Both these pre-course and post-course surveys included Likert-scaled questions pertaining to: personal comprehension of the health professions, understanding of the various career paths a health professional can take, interest in pursuing a health profession, capability of pursuing a health profession, and the quality of advising system to which they felt connected. These questions were scaled from 1 (least) to 5 (most). Questions specific to the post-course survey included whether they would recommend the course to a friend (“yes” or “no”) and a ranking of the students’ most and least favorite health disciplines covered.

**Evaluation Plan/Results:** Of the 23 students requested to complete both surveys, 22 students completed both surveys for a total of 44 survey completions (22 pre-course surveys and 22 post-course surveys). Mean trends from pre-course to post-course included an increased personal comprehension of the health professions (3.45 to 4.59), an increased understanding of the various career paths a health professional can take (3.18 to 4.45), an increased interest in pursuing a health profession (4.36 to 4.59), an increased capability of pursuing a health profession (4.00 to 4.23), and an increase in the quality of advising system to which they felt connected (3.50 to 4.14). Narrative medicine, public and global health, and individual mentoring sessions were the most popular course days, while health policy and health administration were those days students felt needed the greatest improvement. 95.5% of students would recommend the course to a friend.

**Potential Impact/Lessons Learned:** Following the first course iteration, underrepresented students graduated with more interest and a greater sense of capability in pursuing a health career serving others. The course continues to use a longitudinal, multi-disciplinary approach as it's refined with its second cohort of students.

**References:**

1) Smith, S. G., Nsiah-Kumi, P. A., Jones, P. R., & Pamies, R. J. (2009). Pipeline programs in the health professions, part 1: preserving diversity and reducing health disparities. J Natl Med Assoc, 101(9), 836-840.
2) Cantor, J. C., Bergeisen, L., & Baker, L. C. (1998). Effect of an intensive educational program for minority college students and recent graduates on the probability of acceptance to medical school. JAMA, 280(9), 772-776.

**MedAchieve: Inspiring and Mentoring Underserved High School Students towards a Future in Medicine**

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**Idea/Problem Statement:** A mentorship program to inspire underserved high school students to pursue a career in medicine and spread medical knowledge in their communities.

**Need/Rationale:** MedAchieve's high school students are selected from several public schools in Manhattan, New York City with highest enrollment from the Harlem community. The students typically come from medically underserved areas and are selected based on a good standing in their educational institutions and an interest in the medical field. At the start of the 2018-2019 program, 78% of participants reported strong interest in pursuing a career in the medical field, but only 28% indicated that they knew how to become competitive applicants for medical school. In accordance with the Mission Statement of TouroCOM Harlem, the goals of this program are to educate these students about the various career paths in the medical field and to encourage an increase in the number of underrepresented minorities in medicine. In addition to inspiring these students to pursue careers in the medical field, this program aims to spread real world medical knowledge that extends beyond the high school students in order to impact their family and friends in the Harlem community. It has been shown that the rate of obesity and diabetes in this community, especially East Harlem, is much higher than other parts of Manhattan (King et al., 2015). To address these concerning health problems, the MedAchieve curriculum is tailored to raise awareness amongst the high school students in hopes to benefit the overall community.

**Methods:** MedAchieve is an after-school mentorship program that partners high school students with first and second year medical school students from Touro College of Osteopathic Medicine-Harlem. Much like the first two years of medical education, MedAchieve is divided into two year-long sessions composed of 16 lessons each. For the first year, "MedStart" students learn from a curriculum that introduces the subjects in basic medical science and illustrates their relevance to clinical medicine. For the second year, "MedExcel" students participate in lessons reviewing organ systems and the common diseases that affects them. For each session, the high school students are paired with a medical student in a one-on-one model that allows for personal guidance and instruction. In addition, mentor-mentee pairs are organized into small groups allowing for the sharing of even more perspectives. Each week, the classes are broken up into an hour long interactive "lecture", complete with worksheets allowing for students to follow along, followed by an hour "lab" component which involves a hands on demonstration of the lesson. With obesity and diabetes as two major concerning health problems for this specific population, especially East Harlem, this program focuses part of its curriculum around teaching the detrimental effects of a poor quality diet and lack of exercise (King et al., 2015). Educating the youth of the community spreads awareness of these problems to the community at large.

**Evaluation Plan/Results:** The students' ability to understand medical and basic science concepts, and their retention of that knowledge will be assessed directly using monthly quizzes and surveys. The quizzes will be directly based on high-yield concepts taught in our classrooms following specific learning objectives. In addition to measuring their aptitude in the basic sciences/medical concepts, we are also gauging their change in interest and attitudes towards the pursuit of a career in medicine. By interpreting the results from before and after specific milestones in the program, such as the beginning and end of a semester, we can evaluate the progress of both academic and professional goals.

**Potential Impact/Lessons Learned:** High school students enrolled in MedAchieve are encouraged in their studies and provided with the guidance to pursue a career in the medical field. These students contribute to their community by spreading knowledge about disease prevention and illnesses that impact daily life in these populations.

**References:**


1) King L, Hinterland K, Dragan KL, Driver CR, Harris TG, Gwynn RC, Linos N, Barbot O, Bassett MT. Community Health Profiles 2015, Manhattan Community District 11: East Harlem; 2015; 11(59):1-16.
2) Rabinowitz, Howard K. “Recruitment, Retention, and Follow-up of Graduates of a Program to Increase the Number of Family Physicians in Rural and Underserved Areas.” New England Journal of Medicine, vol. 328, no. 13, 1993, pp. 934–939., doi:10.1056/nejm1993
3) Atance, Joel, et al. “Educational Intervention in a Medically Underserved Area.” The Journal of the American Osteopathic Association, vol. 118, no. 4, 2018, p. 219., doi:10.7556/jaoa.2018.047.

**Pre(a)ttending: Pediatric Senior Residents as the Attending in an Outpatient Teaching Clinic**

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**Idea/Problem Statement:** R3s work as pre-attendings in an outpatient clinic focusing on autonomous clinical management, teaching, and leading interdisciplinary clinic team

**Need/Rationale:** Pediatric senior residents have ample opportunity to act in a supervisory role on the inpatient wards - allowing for structured skill development in autonomous decision making and team leadership with direct faculty mentorship. Few programs mirror this same development however in the primary or urgent care setting despite on average at least 50% of pediatric graduating residents moving into outpatient based careers. We query that the outcome of this is likely increased anxiety of senior residents in their initial years as outpatient attendings as compared to their inpatient counterparts. Our aim is to improve resident comfort, confidence, and proficiency in the attending role as an outpatient provider. Our proposed curriculum will facilitate resident transition to attending practice by providing a novel structured supervisory role for senior pediatric residents.

**Methods:** We conducted a needs assessment to identify the curricular gap by evaluating transition to practice literature in PubMed, APPD Shareware House, MedEd Portal as well as other education databases. This demonstrated a paucity of published literature regarding best practices for facilitating resident transition to attending. Despite little information regarding best practices, the studies published reported that residents both desire and benefit from structured roles and curricula to assist in the transitional phase of training. With this knowledge, we plan to implement a structured role for R3s in our urgent care to act as “pre”-attendings to junior trainees with the support of a faculty attending. In this role R3s will monitor clinic flow, precept multiple levels of learners, interact with clinic staff, and focus on independent clinical management as well as billing. At the end of each session paired faculty will provide objective feedback modeled after validated peer observation tools. Subsequently, plans for improvement will be made using the ADAPT model for feedback.

**Evaluation Plan/Results:** We will assess learner comfort and self perceived skill level in multiple domains derived from the ACGME pediatric milestones with an anonymous pre-implementation survey. Six months following implementation we will send post-intervention surveys and assess change in response. Additionally, we plan to collect and assess de-identified evaluations tools over time during our structured role implementation and ascertain if residents’ objectively measured skills as determined by faculty change over time. In the future we will also use our programs annual alumni survey to assess perceived strength of training in graduates who underwent the intervention and those that graduated prior to implementation.

**Potential Impact/Lessons Learned:** Primary impact will be in improved ability to independently operate as an outpatient clinician and decreased anxiety as senior residents transition to outpatient attending roles. The secondary impact will be increased direct observation, real time feedback, and mentoring from faculty attendings.

**References:**

1) Tews M, Quinn-Leering K, Fox C, Simonson J, Ellinas E, Lemen P. Residents as educators: giving feedback. MedEdPORTAL. 2014;10:9658. https://doi.org/10.15766/mep_2374-8265.9658
2) Harrell H, Wipf J, Aronowitz P, et al. Resident as teacher curriculum. MedEdPORTAL. 2015;11:10001. https://doi.org/10.15766/mep_2374-8265.10001
3) Kelly M, Posa M, et al. Transition to Pediatric Practice: A Residency Elective Experience to Prepare Senior Pediatric Residents for General Pediatric Primary Care. MedEdPORTAL. 2010 Sep;2(3):366-72. doi: 10.4300/JGME-D-10-00078.1

**¡Vive Bien! Senior Wellness Program at White Memorial Medical Center**

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**Idea/Problem Statement:** To explore ¡Vive Bien! Senior Wellness Program impact on Latino senior's health through educational and activity driven interventions.

**Need/Rationale:** Latino populations suffer higher rates of diabetes, obesity, undertreated and poor hypertension control, increased rates of activity limitation and disability (1). Participation in senior wellness programs are well known to aid in reducing health care costs and improve health outcomes of participants in these programs (2,3). However, there is very little research focused on the impact of senior wellness programs targeted to Latino populations. The ¡Vive Bien! Senior Wellness Program is a free service offered to communities surrounding White Memorial Medical Center (WMMC). Participants are offered daily courses consisting of educational and activity centered components. Topics covered in the educational components included: Disease management and prevention, diabetes education, nutritional classes, cooking demonstrations, access to health coverage and aid in enrollment. Activities available to participants included: knitting club, Zumba classes, whole body strengthening classes, and dance.

**Methods:** 200 enrollees in the ¡Vive Bien! Senior Wellness Program will be tracked from July 2018- Jan 2019. Participants will have a Pre- Health screening done at time of starting program. Post health screening will be done after 6 months of participation in the program. The health screening will be conducted by WMMC Family Medicine Residents; at the end of the screening participants will meet with a physician, walk through their results and receive recommendations. The health screening includes the following measures: Health Screening Survey; Vitals Signs (Temperature, blood pressure, heart rate, respiratory rate and Pulse Oximetry); Fasting Lipid Panel/Glucose level using a rapid Cholestech LDX analysis; Body composition metrics using Omron HBF-514C (including: Weight, Body fat percentage, BMI -Skeletal muscle percentage, Resting metabolism, Viral fat and body age).

**Evaluation Plan/Results:** Pre- and Post-health screen measures will be assessed and compared using paired sample t test analysis. Specifically, we are looking at significant changes in the patient's body composition and Fasting lipid panel. Currently we have recruited approximately 60 new members and are continuing to conduct health screenings with the goal to reach 200 screenings by January 2019.

**Potential Impact/Lessons Learned:** Senior wellness programs such as ¡Vive Bien! can be a great resource for senior community members and physicians alike to help improve the health of seniors.

**References:**

1) Escarce JJ, Morales LS, Rumbaut RG. The Health Status and Health Behaviors of Hispanics. In: National Research Council (US) Panel on Hispanics in the United States; Tienda M, Mitchell F, editors. Hispanics and the Future of America. Washington (DC): Natio
2) Miltiades, H.B., Grove, S.A., and Drenovsky, C. 2006 Understanding the impact of senior community center participation on elders' health and well-being, project report to Commonwealth of Pennsylvania - Department of Aging, http://www.ncoa.org/assets/files
3) Coberley, Carter & Rula, Elizabeth & Pope, James. (2011). Effectiveness of Health and Wellness Initiatives for Seniors. Population health management. 14 Suppl 1. S45-50. 10.1089/pop.2010.0072.

**Homeboy Industries Laser Tattoo Removal Protocol Evaluation**

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**Idea/Problem Statement:** Evaluation of the various factors that influence laser tattoo removal in vulnerable populations to optimize patient care in this setting.

**Need/Rationale:** Tattoo removal services have an especially profound impact on certain patient populations, including former gang members, for whom tattoo removal has the potential to improve safety and increase employment opportunities (1). However, due to a paucity of literature outlining a standardized regimen of laser tattoo removal that comprehensively considers various tattoo and dermatological characteristics, such a procedure is not being optimized (2). Our project, in collaboration with the Homeboy Industries Tattoo Removal Clinic, aims to make this procedure more accessible and effective for a vulnerable population. We will incorporate findings from an expansive literature review and data analysis to inform physicians working in the tattoo removal clinic, which will better allow them to provide evidence based and culturally competent tattoo removal care.

**Methods:** A comprehensive literature review on laser tattoo removal and a retrospective study will be conducted. The literature review will look at existing pre- and post-laser tattoo removal protocols, factors that influence outcomes such as skin color; tattoo composition; comorbidities; laser types and wavelengths; and social outcomes. For this retrospective study, data from 800 Homeboy's Tattoo Removal patient charts from approximately January 2016 through December 2017, including patient medical history and demographic background will be recorded using a Survey Monkey form. Subsequently, medians, modes, and t-tests will be run to compare the different demographic, medical and social factors involved in the tattoo removal process.

**Evaluation Plan/Results:** Results from the retrospective study will be combined with findings from the literature review and shared with healthcare providers performing laser tattoo removal at Homeboy Industries. Variables such as additions and changes to pre- and post-treatment protocol and laser settings set according to skin color will be implemented at the Homeboy Industries tattoo removal clinic. Patient outcomes defined by scarring; hypo and hyperpigmentation; pain; discomfort; and social outcomes during and upon completion of tattoo removal will be tracked for one year following implementation of new protocols. Results will be compared with the data from January 2016 to December 2017 using means, medians, and t-tests.

**Potential Impact/Lessons Learned:** Optimizing the tattoo removal process can improve the physical, mental, and social outcomes of the vulnerable population included in our study.

**References:**

1) Korman, J. Removal of gang-related tattoos. West. J. Med. 162, 541 (1995).
2) Bencini, P. L., Cazzaniga, S., Tourlaki, A., Galimberti, M. G. & Naldi, L. Removal of Tattoos by Q-Switched Laser: Variables Influencing Outcome and Sequelae in a Large Cohort of Treated Patients. Arch. Dermatol. 148, 1364 (2012).
3) Goh, C. & Ho, S. Laser tattoo removal: A clinical update. J. Cutan. Aesthetic Surg. 8, 9 (2015).

**Improving Autism Screening at the FHC**

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**Idea/Problem Statement:** Improving the familiarity of family medicine residents and clinic staff with AAP autism screening and to improve our screening rate to 100%.

**Need/Rationale:** There are clear and documented disparities in the screening and diagnosis of autism spectrum disorders (ASDs) amongst children of Hispanic descent when compared to their peers of other ethnicities. Zuckerman et al. State that “Latino children are diagnosed at a later age with ASDs 2.5yrs later than white children and have more severe symptoms at the time of diagnosis” (1). Furthermore, only 23% of primary care clinicians reported that they routinely used a validated tool when screening for autism (2). This delay is unfortunate because earlier diagnosis and earlier interventions lead to improved outcomes over a broad variety of domains. Additionally, the American Academy of Pediatrics recommends screening for autism with an ASD specific instrument at well child visits at 18 and 24 months along with routine developmental screening. This provides us with an opportunity to improve our clinical practice and better serve our patients. The providers at our clinic, which serves a predominately Hispanic patient population, likely fall into the majority of primary care clinicians who do not adequately screen for ASDs as defined by the AAP. One well validated example of an ASD specific screening instrument is the MCHAT-RF. This is available in Spanish and is designed as a parent completed survey. Ideally, 100% of children aged 18 and 24 months would be screened for ASDs at these respective well child checks.

**Methods:** Residents of the Family Medicine Residency Program at all levels of post-graduate training and the clinic support staff whom they work with at the Family Health Center at Suite #230 at The White Memorial Medical Plaza II will be the focus of my intervention. My planned intervention includes several arms: 1) Multiple didactic sessions to educate the above cohorts about the importance of autism screening, the impacts of early diagnosis and intervention, and the recommendations of the AAP; 2) Front office staff will be educated to include MCHAT-RF surveys in the bundle of intake paperwork given to parents of children at 18 month and 24 month well child checks during November and December. These parent completed surveys will be scored and uploaded onto our EMR for future reference; 3) Ideally, our EMR will be amended so that a new checkbox or field can be created to track screening in our easy to access “Side bar”. This will facilitate clear documentation of screening status and help to identify those patients with incomplete screening statuses. Positive and negative screens will also be categorized and documented here; 4) Positive screens will be further evaluated by the follow up portion of the MCHAT-RF. This is performed by a provider and will ideally take place over the phone in a conversation with the parent. A follow up appointment will be scheduled for the child if the parent has any questions or desires additional education or counseling.

**Evaluation Plan/Results:** The results of the intervention would be evaluated by a chart review. All well child checks during the time frame specified above will be personally reviewed by the lead investigator for documentation of screening. The subjects’ reaction and learning points will be evaluated by an anonymous online survey. The effectiveness of the intervention will be judged by comparing the rate of screening in the target population during the 2 months following the intervention to the rate of screening during the two month before the intervention.

**Potential Impact/Lessons Learned:** Hopefully this project will improve the early identification of children at our clinic and improve our ability to refer them quickly to specialty care to give them the best chance at improved outcomes.

**References:**

1) Zuckerman et al. Pediatrician Identification of Latino Children at Risk for Autism Spectrum Disorder. PEDIATRICS Volume 132, Number 3, September 2013.

2) Windham et al. Autism and Developmental Screening in a Public, Primary Care Setting Primarily Serving Hispanics: Challenges and Results. J Autism Dev Disord (2014) 44:1621–1632.

**It's Game Day Residents: Don't Forget to Bring the Point of Care Ultrasound (POCUS)!**

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**Idea/Problem Statement:** POCUS use by Family Medicine residents in sport training rooms and during event coverage can decrease imaging request and improve resident confidence.

**Need/Rationale:** Sports Ultrasound (US) has been a growing field due to increasing portability, decreasing cost, improving image quality, and a heightened concern for radiation risk. This, combined with the ability to rapidly help make a diagnosis, makes US ideal for use in sports locker rooms and during sporting event coverage. Suspected injuries involving bones, joints, tendons, ligaments and nerves can all have initial scans performed within minutes. Of particular note, US is increasingly being utilized in evaluating fractures and blunt trauma. Most sporting events are three hours in duration and obtaining any other form of imaging would entail transport away from the event. Imaging methods such as an X-ray would require missing the remainder of the game, being exposed to radiation, and long wait times in ED or Urgent Care including time to read the image. Family Medicine residents' training include sports medicine and they are involved in coverage of many sports and events. Exposure to US at the sidelines, in essence at the point of care, in residency can promote confidence to accurately diagnose injuries, cover more events, be more definitive in return to play decisions and encourage US skills. Studies show resident confidence to identify musculoskeletal (MSK) pathology improves with exposure to diagnoses and availability of event coverage. This can help address the recurring question regarding the adequacy of MSK education by combining it with the growing field of POCUS.

**Methods:** The training room ultrasound program would be implemented at Citrus Valley Family Medicine Residency Program in West Covina for the period of one year. 20 Family medicine residents would be involved as well as sports medicine faculty. Residents will be introduced to POCUS via online tutorials, with access to US in the continuity clinic. Two portable US will be carried to all sporting events and training rooms involving the two colleges covered by the residency program. Training room visits will be once a week and will be open to athletes from all sports at the college campuses. Event coverage will mainly include two contact sports: football and lacrosse. All patients with injuries will be evaluated without US and if imaging is needed, a POCUS scan will be performed at bedside. If this renders a diagnosis, a treatment plan will be put into motion, without further imaging. If not, imaging will be obtained prior to treatment. The residents' comfort with the US, event coverage, and return to play decisions will be evaluated with a questionnaire and a qualitative analysis will be completed to assess physician confidence.

**Evaluation Plan/Results:** The study will be of one year duration. All injuries will be catalogued. The evaluation will consist of athletes being their own control and treatment group. For the control portion, a history and physical will be completed in standard fashion and a plan will be created which may or may not include imaging. The treatment group will consist of the athletes who have been examined and are in need of further imaging. The group will then have an US scan completed. At the end of the US scan, it will be determined whether to still proceed with requesting further imaging or not. The number of athletes being considered for further imaging will be compared prior to US use and after US use. Statistical analysis will be performed to elucidate differences between the groups. Other outcomes measured will be how often US is employed and number of resident scans. Resident confidence with US and event coverage will be measured using a Likert scale from 1-5 before and after the program.

**Potential Impact/Lessons Learned:** The authors envision incorporation of POCUS on the sidelines and at events among residents which may lead to greater interest and confidence in sports medicine. Also, the study aims to improve athletes' care with more rapid diagnoses and decrease healthcare cost by limiting imaging and ED visits.

**References:**


1) Finnoff JT, Hall MM, Adams E, et al. American Medical Society for Sports Medicine position statement: interventional musculoskeletal ultrasound in sports medicine. Clin J Sport Med 2015; 25: 6–22.
2) Finnoff J, Lavallee ME, Smith J. Musculoskeletal ultrasound education for sports medicine fellows: a suggested/potential curriculum by the American Medical Society for Sports Medicine. Br J Sports Med 2010; 44: 1144–8.
3) 6 Gulati G, Alweis R, George D. Musculoskeletal ultrasound in internal medicine residency - a feasibility study. J community Hosp Intern Med Perspect 2015; 5: 27481.

**Mitigating Clinic Wait Times through Music Therapy**

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**Idea/Problem Statement:** Quality improvement - music therapy for roomed clinic patients to lessen the perception of waiting time and ease anxiety.

**Need/Rationale:** Despite optimization within high volume outpatient clinics, the wait between the time a patient is roomed and when the doctor arrives is, at times, unintentionally lengthy. Both wait times and idle-anxiety can then lead to patient dissatisfaction and compromise the physician-patient relationship. In an effort to improve the quality of clinical encounters, there is a need to examine the unnecessary stress and anxiety of potentially long clinic wait times. Zakay et al. (1989) suggested that music can psychologically change the internal clock of time as it relates waiting and attention span. A study by Cook et al. (2005) deemed music as simple and cost effective interventions to reduce anxiety levels of short waiting periods in outpatient clinical settings. Similar findings were concluded in hospitalized patients Evans et al. (2002). While the actual roomed-wait time is multifactorial (physician workflow vs patient problem list/complexity factors), we hypothesize that the subjective perception of how long a patient waits and levels of anxiety can be reduced through non-vocal classical-genre music therapy.

**Methods:** Study design: initial-survey then intervention (music). The study focuses on roomed patients in an outpatient clinic that is associated with a large integrated health delivery system - Kaiser Permanente Los Angeles Medical Center. Over the course of two weeks, one family medicine attending physician will have patients surveyed about their clinic experience. The first part of the survey being the STAI-6 (Modified Spielberger State Trait Anxiety Inventory); the second being questions related to perceived wait times. Objective patient wait times will also be obtained; defined as the duration of time between when the nurse exits from a roomed patient and when the physician enters. On a sticky note outside the patient's doorway, the current time will be recorded twice: first by the nurse upon exit (TIME ROOMED) and second by the physician upon entrance (TIME ENTERED). At the conclusion of the encounter and before exiting the room, the physician then offers the survey to be filled out by the patient. Finally the nurse returns into the room with any follow up patient instructions and meanwhile attaches the doorway sticky note (with the two times) to the completed survey. Over the next two weeks, the intervention will now feature rooms with the classical radio station (91.5 kUSC) at a volume of 40 decibels that is phone app checked (normal conversation ~60dB). Accordingly, the protocol of obtained wait times via sticky note and physician's survey offer will remain the same.

**Evaluation Plan/Results:** The first part of the survey is the STAI-6 (Marteau et al. 1992) of six items, each ranked from 1-4. Indicate how you feel now, at this moment: 1. I feel calm 2. I feel tense 3. I feel upset 4. I am relaxed 5. I am content 6. I am worried. Evaluation of scores: reverse the score of the positive items (calm, relaxed, content), then sum up scores and multiply by (20/6). A "normal" score is less than 36. The second part of the survey regards time perception. 1. How long (in minutes) do you think you waited between: after the nurse left the room and when the doctor entered? 2. To what extent did you enjoy waiting for the doctor to arrive? (Scale of 1-10) 3. How annoyed were you by being kept waiting? (Scale of 1-10). Subjective survey data will reveal patient idle anxiety and perceived wait times in comparison to intervention (music). Objective wait times are calculated by: TIME ENTERED-TIME ROOMED=actual wait time duration. All data will be analyzed via ANOVA for statistical differences.

**Potential Impact/Lessons Learned:** To safeguard physician-patient relationship via the improved patient satisfaction of clinic wait times and idle anxiety levels through music therapy.

**References:**

1) Zakay, D. (1989). Subjective time and attentional resource allocation: An integrated model of time estimation. In I. Levin & D. Zakay (Eds.), Time and human cognition: A life span perspective. Amsterdam: North-Holland.

2) Evans, D. (2002), The effectiveness of music as an intervention for hospital patients: a systematic review. Journal of Advanced Nursing, 37: 8-18.doi:10.1046/j.1365-2648.2002.02052.x
3) Cooke, M. , Chaboyer, W. and Hiratos, M. A. (2005), Music and its effect on anxiety in short waiting periods: a critical appraisal. Journal of Clinical Nursing, 14: 145-155. doi:10.1111/j.1365-2702.2004.01033.x

**Reducing Hospital Readmission Rates**

Davila, Oscar L.
*White Memorial Medical Center Family Medicine Residency Program*

**Idea/Problem Statement:** Reduce 30-day hospital readmission rate among patients admitted to the family medicine service at Adventist Health White Memorial.

**Need/Rationale:** According to research conducted by Dexur.com in 2017, 25% of Los Angeles County hospital patients are readmitted within 30 days of hospital discharge. The 25% readmission rate surpasses the average 20% readmission rate in the state of California. I saw this discrepancy in readmission rates play out during my family medicine residency in an LA County hospital. Patients are frequently readmitted to the hospital even after receiving instruction and medical advice at the time of discharge. I conducted a scholarly project in to standardize and improve the discharge process using a teach back method.

**Methods:** Over a three-month period, Adventist Health White Memorial Family Medicine residents conducted a teach back process with patients discharged from the family medicine service to reduce 30-day hospital readmission rates. The teach back process involved having residents explain a patient's primary diagnosis, medication adjustments, and hospital follow-up plans with their primary care physician and specialists. The patient or primary caretaker would then be asked to teach back the information they heard from the resident to evaluate their understanding of discharge information. If the patient or primary caretaker was unable to provide satisfactory answers during the teach back process, the patient or their primary caretaker would receive further clarifications about discharge instructions. Patients or their primary caretakers would also receive a phone call after their visit to reiterate the elements of the discharge plan. The phone calls also served to assess how patients were feeling post-discharge and evaluated medication adherence. This process attempted to help patients better understand follow-up plans with their primary care physician or specialists. Three attempts were made to contact patients by telephone after they were discharged. The first attempt was made within 24-48hrs, the 2nd attempt was made within 72 hours and the final attempt took place 96 hours after discharge.

**Evaluation Plan/Results:** Preliminary analysis shows that over a three-month period a total of 309 patients were discharged from the family medicine service at Adventist Health White Memorial. Out of the 309 patients, 43 were readmitted within 30-days resulting in an average 30-day readmission rate of 14%. During month one, 14% (15/108) of patients were readmitted. In month two, 9% (10/109) of patients were readmitted. On the third month, 19% (18/92) of patients were readmitted. The teach back process was successfully completed in 72% (224/309) of patients discharged. Of the 224 patients who underwent the teach back process, 60% (135/224) of patients or their primary caregivers were not able to satisfactorily complete the teach back process at discharge. Of the 135 patients who met the criteria to receive a phone call after discharge, 74% (100/135) were successfully contacted by phone. Of the 43 patients who were readmitted, 80% (34/43) underwent the teach back process. 69% (23/34) of patients who were readmitted and underwent the teach back process did not satisfactorily complete the teach back process during their hospital discharge. 90% (20/23) of patients who did not satisfactorily complete the teach back process and were readmitted within 30-days were successfully reached by phone after they were discharged. Continued analysis of patient characteristics is currently underway to analyze patient demographics to assess risk factors for increased readmission rates over the three- month period.

**Potential Impact/Lessons Learned:** Addressing and reducing hospital readmissions has the potential of reducing morbidity, mortality and health care expenses.

**References:**

1) Healthcare Benchmarks Qual Improv. 2011 Nov;18(11):123-5. Teach-back program reduces readmissions.

2) Kemp E, Floyd M, McCord-Duncan E & Lang F. Patients prefer the method of 'tell-back-collaborative inquiry' to assess understanding of medical information. Journal of American Board of Family Medicine. 2008;21(1):24-30.
3) "Teach back" Reduces Readmissions for CHF Patients. The Hospitalist. 2011 November;2011(11)

**Development of a Web-Based Assessment Method for Trainees in Pediatric Pathology**

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**Idea/Problem Statement:** We postulated that online pre- and post-rotation tests will improve the learning experience for pathology residents rotating in pediatric pathology.

**Need/Rationale:** ACGME (Accreditation Council for Graduate Medical Education) has provided guidance for residency and fellowship programs by defining 6 core competencies that must be met in order to successfully complete a particular rotation: Patient Care (PC), Medical Knowledge (MK), Practice-Based Learning and Improvement (PBLI), Interpersonal and Communication Skills (ICS), Professionalism (PROF) and Systems-Based Practice (SBP). In 2015, outcomes-based milestones were introduced as a framework for determining resident and fellow performance within the six ACGME core competencies. In pathology, one proposed milestone within the MK core competency is “diagnostic knowledge”, which refers to the trainee’s capability to assimilate medical information related to macroscopic and microscopic appearance of diverse disease entities, leading to the ability to establish a correct diagnosis. For this particular milestone, one suggested evaluation method is represented by examinations/quizzes.

**Methods:** All pathologists in our department created a 300 multiple-choice question bank, covering diseases of ten organ systems (bone, CNS, endocrine glands, gastro-intestinal system (GI), genito-urinary system (GU), heart, liver, lung, skin and soft tissue). Five quizzes were then created randomly: two used as pre-rotation tests and three as post- rotation tests. 38 residents (PGY II and PGY III, rotating for either 1 or 2 months) participated in the study; the tests were paper-based for the first 32 residents (group 1) and were administered using an online platform for the last 6 (group 2). The web-based testing platform provides instant results and is able to calculate the percentage of questions answered correctly overall, as well as for individual organ-system. Based on pre-test results, areas of weakness (organ-systems with scores lower than the overall score) were identified for each of group 2 residents and targeted interventions (unknown slide conferences or didactic lectures covering the recognized weak areas) were introduced during their rotation. The improvement between the post- and pre-rotation scores (overall and also for individual organ-systems, particularly those acted upon) were compared for group 2 trainees.

**Evaluation Plan/Results:** All residents (both group 1 and group 2) showed improvement in their medical knowledge as highlighted by the increase in the average score from 58% (ranging from 38% to 82%) on the pre-rotation test to 74% (ranging from 50% to 91.7%) on the post-rotation test (p=0.02). No significant difference in the overall knowledge gain was found between group 1 and group 2 residents (17% vs. 15%, p=0.5). For the same resident, we observed uneven levels of improvement in different organ-systems. However, a constant trend was noted for group 2 residents: each of the 6 trainee in this cohort answered correctly a significantly higher percentage of questions within the organ-systems acted upon, compared with their overall score (34% vs. 15%, p=0.05). The most common targeted organ systems were bone, GI, soft tissue and cardiac.

**Potential Impact/Lessons Learned:** The online testing platform allows us to identify domains in which the trainee still needs improvement and thus to provide targeted feedback to strengthen his/her knowledge in those specific areas. It also helps us recognize subjects where we can enhance our teaching activities.

**References:**

**"Best Practices Made Simple" - Chronic Nonmalignant Pain at HUCLA Family Medicine Residency Program**

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**Idea/Problem Statement:** Implementation of a chronic nonmalignant pain algorithm to improve evaluation, medication prescribing and SBIRT for identified substance use disorders.

**Need/Rationale:** Although we promote medication safety for pain and substance use disorders (SUD), we struggle to implement the CDC guidelines for use of opioids in chronic nonmalignant pain. Unfortunately, overdose deaths involving prescription opioids were five times higher in 2016 than in 1999 (1) and about 50% of people with severe mental health disorder also have a SUD (2). Given the multiple demands and serious social determinants of health for patients in a safety net family medicine residency clinic such as ours, it is difficult to adequately assess, diagnosis, and treat patients with concomitant chronic nonmalignant pain and SUD. We aim to help increase the medical knowledge and comfort of family medicine residency faculty and residents in assessment and treatment of patients with chronic nonmalignant pain. Our clinic now has a SUD team that includes a licensed clinical social worker, medical case worker and substance abuse counselor on site. By helping providers identify at risk as well as those with SUD, we can increase our department's Screening, Behavioral Intervention, and Referral to Therapy (SBIRT) skills and referral to this valuable resource.

**Methods:** From October 2018 to October 2019 we will conduct pre and post survey of patients, faculty, and residents. The faculty and resident survey will consist of the Veterans Health Administration (VHA) attitudinal survey (3). After performing the patient and provider pre-survey, we will present the revised chronic nonmalignant pain treatment algorithm that includes the new onsite SUD services at our residency in addition to the new Department of Health Services clinical guidelines in November 2018. Additional faculty training and reminders to use the revised pain algorithm and SUD resources when precepting will occur throughout the year. Electronic and pockets versions of the algorithm will be available to all providers. During this time we plan on creating a registry consisting of patients age 18 years of age and older that have received opiates for greater than 90 days in the past year. By creating the chronic nonmalignant pain patient registry, we'll better identify patients that maybe at risk of opioid use disorder and/or overdose. With a revised provider evaluation of undifferentiated pain, we'll use chart review to evaluate if there is an increased use of mental health and/or SUD resources.

**Evaluation Plan/Results:** All providers (faculty and residents) will complete the Know Pain 50 survey. The new VHA survey will be sent to faculty and residents until 100% completion is reached. After the didactic for the revised chronic nonmalignant pain treatment algorithm we will monitor the number of referral to mental health and/or SUD services via chart review. We will re-administer the VHA attitudinal survey in June 2019 to graduating residents and all other providers in October 2019. Identified patients will be survey pre and post intervention.

**Potential Impact/Lessons Learned:** By providing additional tools, structure and resources to the diagnosis, evaluation, and treatment of chronic nonmalignant pain, our physicians will have increased comfort in treating and referring identified patients with chronic nonmalignant pain and ultimately less opioid related deaths.

**References:**

1) Seth P, Rudd R, Noonan, R, Haegerich, T. Quantifying the Epidemic of Prescription Opioid Overdose Deaths.American Journal of Public Health, March 2018;108(4),e1-e3.
2) https://www.dualdiagnosis.org/an-introduction-to-integrated-treatment/
3) http://primarycare.imedpub.com/comprehensive-assessment-of-chronic-pain-management-in-primary-care-a-first-phase-of-a-quality-improvement-initiative-at-a-multisite-community-health-center.php?aid=223

**Using Design Thinking to Deliver Techniques for Addressing Burnout in Medical Education**

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*Northwestern University, Feinberg School of Medicine*

**Idea/Problem Statement:** With high burnout rates in medical education, students and residents can suffer in a culture of silence. Design Thinking provides a solution.

**Need/Rationale:** Burnout is a significant concern in medicine and medical education. UME and GME programs must contend with burnout in increasing numbers and research has shown that burnout rates are significantly higher in medical education than in the general population. Various approaches to address burnout have evolved but UME and GME programs continue to grapple with how to provide consistent and effective support while students and residents continue to struggle. Practical and effective approaches to address burnout are needed in medical education. This need is impacted by a culture of silence that often exists within medicine that makes it difficult to openly discuss personal struggles and feelings about burnout or other mental health conditions. Silence may cause those in difficulty to feel more alone and more isolated, leading to a façade of positivity. This façade can further isolate those most in need and heighten feelings of failure and doubt. Medicine often contends with failure in the abstract but remains uncomfortable with discussions about actual failures. Reducing stigma around personal struggle requires conversations and listening. When students, residents, faculty, and staff are able to openly discuss and hear stories about these and other struggles an environment of support develops in which to address burnout and wellbeing.

**Methods:** Addressing burnout requires a shared understanding of the problem, from multiple perspectives, engaging key stakeholders, building consensus, and designing and implementing a plan. This plan must give voice to the people who contend with burnout and understand the potential for stereotype threats. Design Thinking provides such an approach using a solution-based perspective and methodology to solve complex problems by understanding the human needs that are involved, reframing the problem in human-centric ways, ideating in brainstorming sessions, and adopting a hands-on approach in prototyping and testing. This “Cool Idea” features ideation and collaboration within a brainstorming session to clarify the culture, needs, and experiences within medical school and GME programs. Ideation begins with a review of selected narratives from students and residents contending with burnout to seek new angles in addressing burnout in UME and GME programs.

**Evaluation Plan/Results:** Design Thinking has five stages, though they are not always sequential. These stages include empathy, defining the problem, ideation, prototyping, and testing. Stage 1: To gain an empathic understanding of the problem among key stakeholders (across multiple systems) such as students/residents, faculty and staff Stage 2: To collaboratively define burnout Stage 3: To ideate within a dedicated environment in order to seek every angle (possible examples include brainstorming, challenging assumptions, and inverted brainstorming the worst possible idea Stage 4: To design a few inexpensive interventions (prototypes) for burnout within an experimental phase Stage 5: To use the best solutions identified during prototyping to test the intervention

**Potential Impact/Lessons Learned:** Medical Education must contend with burnout in increasing numbers and research shows that burnout rates are higher in medical education than in the general population. Design Thinking provides a framework to design effective interventions for burnout across UME campuses and GME programs.

**References:**

1) A narrative review on burnout experienced by medical students and residents. Dyrbye, Liselotte, and Shanafelt, Tait. 2015 John Wiley & Sons Ltd. MEDICAL EDUCATION 2016; 50: 132–149
2) Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis, Colin P West, Liselotte N Dyrbye, Patricia J Erwin, Tait D Shanafeltwww.thelancet.com Vol 388 November 5, 2016

3) Introduction to Design Thinking, Waloszek, Gerd, 2012
https://experience.sap.com/skillup/introduction-to-design-thinking/

**Physician Executive Leadership: A Student-Run, Student-Driven Approach to Healthcare Leadership**

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**Idea/Problem Statement:** We describe a student-run, student-driven curriculum that delivers healthcare knowledge to prepare students for an evolving healthcare landscape.

**Need/Rationale:** As the United States healthcare system continues to change, leaders in medical education have identified new skills physicians must demonstrate to successfully practice. Among these skills are interdisciplinary teamwork, financial knowledge, quality improvement, an understanding of information technology, and a systems-based approach. While the healthcare system expects new skills from physicians, undergraduate medical curriculums are just beginning to modify formal educational offerings to address these areas. As the medical education system is slow to adapt, only 40-50% of medical students report “appropriate” training in the practice of medicine upon graduation. In response to these perceived gaps in medical education, students at Sidney Kimmel Medical College (SKMC) founded Physician Executive Leadership (PEL). PEL is a student-run extracurricular program that provides medical students with a platform to build healthcare knowledge and cultivate leadership skills.

**Methods:** The PEL curriculum is centered around six pillars: Health Finance, Entrepreneurship & Innovation, Law & Ethics, Applied Leadership, Care Quality & Experience, and Health Policy. Throughout the year, students earn credit towards the curriculum by attending lectures on topics related to these pillars given by leaders and innovators who are invited by PEL’s Executive Team. Students also earn credit by taking an active role in their education by writing about a topic of their interest for the PEL student-run journal, The Diagnostic, leading a small-group session about an area of their own expertise, or completing a summer internship in healthcare innovation. A key component of the PEL organization is the use of feedback forms following every lecture and small group. The forms assess the impact of programing by surveying participants on their satisfaction with the activity and their perspective on the importance of PEL’s pillars. Additionally, a multiple-choice assessment is administered to provide an objective measure of what students learned. Using the results, the PEL Executive Team is able to dynamically adjust programming to meet the interest of students participating in the PEL curriculum. Subjective questions on feedback forms were assessed by the percent of participants indicating they were “satisfied” or “strongly satisfied” (Likert scores of 4 and 5) or percent who “agreed” or “strongly agreed” (A or SA) with statements regarding aspects of PEL (Likert scores of 4 and 5).

**Evaluation Plan/Results:** During the 2017-2018 academic year, 176 students attended at least one activity organized by PEL. Overall, 11 events were hosted: one Health Finance, two Entrepreneurship & Innovation, two Law & Ethics, two Applied Leadership, two Care Quality & Experience, and two Health Policy. The majority of students (81%) were either “satisfied” or “strongly satisfied” with the curriculum. By the end of the year, students A or SA that their understanding of Entrepreneurship & Leadership (76%), Care Quality & Experience (71%), and Health Finance (70%) increased the most as a result of participation in PEL. Of the six pillars, students A or SA that their interest increased the most in Entrepreneurship & Leadership (65%), Care Quality & Experience (61%), and Health Finance (59%). An overwhelming majority of students A or SA that exposure to all six pillars of PEL will benefit them in the future as a physician. Specifically, Entrepreneurship & Leadership (93%), Health Finance (91%), Applied Leadership (90%), and Care Quality & Experience (90%), Health Policy (89%), and Law & Ethics (86%). Furthermore, the majority of PEL students A or SA that each of the six pillars should be integrated into medical education for all students: Care Quality & Experience (86%), Law & Ethics (85%), Health Finance (85%), Health Policy (84%), Applied Leadership (75%), Entrepreneurship & Leadership (74%). Of the students not graduating, 99% indicated they planned to continue attending PEL events the following year.

**Potential Impact/Lessons Learned:** As a student-run, student-driven curriculum, PEL delivers programming that meets the interests of participants. Feedback forms provide the PEL Executive Team with prompt data regarding understanding of topics. Student-run programming can be used as a tool to address gaps in medical education.

**References:**


1) Crosson FJ, Leu J, Roemer BM, Ross MN. Gaps in residency training should be addressed to better prepare doctors for a twenty-first-century delivery system. Health Aff (Millwood). 2011;30:2142–2148.
2) Gonzalo JD, Haidet P, Blatt B, Wolpaw DR. Exploring challenges in implementing a health systems science curriculum: a qualitative analysis of student perceptions. Med Educ. 2016 May;50(5):523-31.
3) Patel MS, Lypson ML, Davis MM. Medical student perceptions of education in health care systems. Acad Med. 2009;84(9):1301-1306.

**Creation of a Well-being Curriculum for Interprofessional Trainees at a Clinic for Homeless Veterans**

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*[1] UCLA Semel Institute for Neuroscience and Human Behavior; [2] WLA VA Center of Excellence in Primary Care Education; [3] UCLA David Geffen School of Medicine*

**Idea/Problem Statement:** Healthcare trainees caring for vulnerable patients are at risk for burnout; it can be difficult to retain these trainees in such clinical settings.

**Need/Rationale:** Veterans who are experiencing homelessness have complex needs that can drain the emotional resources of clinicians. For instance, these patients suffer from disproportionately high rates of medical and psychiatric illness, and they may lack the infrastructure necessary to follow through with clinical recommendations and arrive on time to appointments. Clinicians caring for vulnerable patients are at risk for burnout. To address this, we developed a longitudinal intervention to reduce burnout and improve well-being among healthcare trainees.

**Methods:** We first administered a needs assessment to the clinic's 14 trainees from nursing, psychology, pharmacy, psychiatry, and internal medicine. We measured baseline resilience, stress, burnout, and mindfulness. We held a kick-off interactive workshop in stress and coping with a national well-being expert. Next, we created a toolkit consisting of fourteen tools – half focused on personal well-being, and half focused on team well-being. We developed graphics illustrating these tools and displayed them in the clinic. We also created a "well-being room" as a space for trainee reflection.

**Evaluation Plan/Results:** Our needs assessment found areas for improvement across all domains measured. The mean trainee score on the Connor-Davidson Resilience Scale was 29.4 out of 40, which is lower than community sample of US adults. The mean score on the Cohen Perceived Stress Scale was 14.4 out of 40, which is higher than community sample of US adults. The mean depersonalization score on the Maslach Burnout Inventory was 3.7 out of 15 points. We measured two components of mindfulness: the mean score for "observing" was 26.6 out of 40, and the mean score for "non-reactivity to inner experience" was 24 out of 35. We measured these domains again in trainees one year after the start of the well-being program. This data is pending. Trainees at our center also ranked the tools based on three scales: importance (how important is the tool to maintain well-being?); readiness (how ready am I to use the tool to maintain well-being?); and confidence (how confident am I in my ability to use the tool to maintain well-being?). Mean "Importance" rankings at our clinic ranged from 7.83 for a "mindfulness" tool to 9.82 for a "patient-centered goal" tool. Mean "Readiness" rankings ranged from 6.6 for a "ladder of inference" tool to 8.73 for the "patient-centered goal" tool. Mean "Confidence" rankings ranged from 6.42 for the "mindfulness" tool to 8.36 for the "patient-centered goal" tool. We found that overall, trainees felt that team-based tools are more important than individual tools.

**Potential Impact/Lessons Learned:** The results of our needs assessment demonstrated an opportunity to improve trainee well-being, especially levels of stress and resilience. We also found that trainees feel that well-being tools are important, particularly team-based well-being tools. We hope that this program can improve retention.

**References:**

**Self-forgiveness Meditation to Improve Wellness of OBGYN House-staff**

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**Idea/Problem Statement:** To determine the effectiveness of an audio meditation intervention in facilitating reflections and forgiveness

**Need/Rationale:** When you forgive someone, you make the decision to let go of the bitterness, resentment and anger you feel towards that person, but choosing to forgive others when they have wronged you is extremely difficult. Self-forgiveness is more challenging because forgiving the self involves acknowledging oneself as the offender. People feel guilt and shame when assessing their transgressions, causing more stress. This negative self-evaluation is strongly supported by the 'inner critic' or judge. Self-condemnation impairs wellness; physicians' inability to forgive errors indicate need for self-forgiveness skills to improve well-being. High levels of self-compassion and self-esteem have been shown to correlate with suppressed inflammatory activation in response to psychosocial stress. Research has shown that forgiving others and events improves relationships and self-esteem, reduces anxiety/depression and stress, lowers blood pressure, and improves cardiovascular health and immune function

**Methods:** A one-hour self-forgiveness workshop was developed. The 18-item Heartland Forgiveness (HFS) which measures forgiveness for others, self and situation was completed pre- and post-intervention. The workshop timeline included: 1) HFS completion (7.5 minutes); 2) Lecture on self-forgiveness based on the Internal Family Systems (IFS) and inner critic model (10 minutes); 3) group discussions on self-forgiveness concepts (10 minutes); 4) guided audio meditation on self-forgiveness (15 minutes); 5) group discussions on utility of IFS meditation (10 minutes); 6) HFS completion (7.5 minutes).

**Evaluation Plan/Results:** Eighteen OBGYN residents attended the workshop as part of a residents' wellness program. The pre-intervention discussions revealed that OBGYN residents carried guilt from 1) The Shame Blame culture (Residents feel that they are blamed for many things and feel helpless in defending themselves); 2) Competing events for time; 3) Professional-personal life balance; 4) Individual professional responsibility (anxiety about graduating and having individual final responsibility for patients since as a resident, responsibility is shared with attending); 5)Silence ( difficult to talk about issues). Interventions currently in-use include mindfulness and headspace. After the audio meditation, reflections on the utility of IFS meditation included 1) finding time (we cannot find time because we have not given priority to our feelings, our wellness and our mind); 2) Developing competence; 3) Focused events (Better if one has a specific event in mind, better to use after "bad" occurrence, Could help after sentinel events or medical errors); 4) Protected time to acknowledge and become aware of their own emotions and communicate with oneself; 5) Challenging to focus since mind wanders during meditation. Training was discussed. The residents all concluded that faculty, trainees and patients could benefit from the brief audio self-forgiveness meditation.

**Potential Impact/Lessons Learned:** A brief guided audio meditation intervention with focused discussions can improve awareness about self-forgiveness and tendency to forgive. This can be incorporated in wellness programs and has implications for both short term and long-term health outcomes.

**References:**

1) Toussaint, L. L., Owen, A. D., & Cheadle, A. (2012). Forgive to Live: Forgiveness, Health, and Longevity. Journal of Behavioral Medicine, 35(4), 375-386.

2) Larsen, B. A., Darby, R. S., Harris, C. R., Nelkin, D. K., Milam, P., & Christenfeld, N. J. (2012). The Immediate and Delayed Cardiovascular Benefits of Forgiving. Psychosomatic Medicine, 74(7), 745-750.
3) Ishak W, Nikravesh R, Lederer S, Perry R, Ogunyemi D, Bernstein C. (2013). Burnout in medical students: a systematic review. The Clinical Teacher. 10(4), 242-245.

**Resident Wellness: How to Find Your Ikigai and Create a Positive Attitude**

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**Idea/Problem Statement:** Recognizing the importance of resident wellness, we created dedicated resident wellness exercise focusing on the Japanese lifestyle concept “Ikigai.”

**Need/Rationale:** Residency is a critical time for the development of physicians; it’s a time of fast-paced learning and incredible growth – both personally and professionally. While changes have been implemented, the work environment during residency is still extremely challenging as physicians work long hours, care for critically ill patients, and make substantial personal sacrifices. Multiple national studies have highlighted these challenges, with physician burnout remaining higher than other professionals in the United States. Recently, the focus has shifted from burnout prevention to physician wellness and resilience; this has been recognized by the ACGME with the inclusion of resident wellness in the most recent common program requirements. The goal of the Grand Strand Transitional Year Residency leadership is to create a happier and satisfied trainee cohort that will cultivate strong mental and physical skills which will help throughout the challenges of residency and future practice.

**Methods:** After a background literature review, the program coordinator and program director developed a dedicated session during resident orientation focused on the concept of Ikigai. Each resident was provided with a worksheet that asked them to assess four key questions about particular domains of their life which guide their everyday activities: 1) What do I love?; 2) What am I good at?; 3) What can I be paid for?; 4) What does the world need? After a dedicated time for introspection, a didactic session on “Ikigai” – the Japanese philosophy on “reason for being” – was reviewed and the residents were asked to identify how this concept could be used to shape their vision and goals for the upcoming year of the transitional year residency program. A reading with additional information on Ikigai was also provided. A formal anonymous survey of resident responses and attitudes using a Likert scale was completed by each participant to gauge their experience with the session. Data were compiled and basic statistical analysis was performed.

**Evaluation Plan/Results:** All 12 Transitional Year Residents who participated in this exercise have provided formal feedback. 83% (10/12) of residents were unfamiliar with the concept of ikigai prior to the orientation session. The residents overwhelmingly agreed that the “Ikigai” exercise provided a skill-set that was important to the personal and professional development. The residents agreed that by participating in this workshop, their skills in resiliency and self-reflection increased and they would be able to respond accordingly the next time they experience burnout. 100% of residents agreed that the “Ikigai” exercise conveyed the program places a high value on self-reflection. 91% (11/12) of residents stated that the “Ikigai” exercise was an activity that they planned to voluntarily return to over time. The residents agreed that by participating the worksheet provided, they were able to identify the relevant parameters (passion, mission, profession, and vocation) that are ultimately required to identify the state of “Ikigai” found at the confluence of these domains.

**Potential Impact/Lessons Learned:** While further exposure and implementation will be needed, we believe that education with trainees regarding “Ikigai” leads to the development of strong mental and physical skills that will help trainees throughout residency and into clinical practice.

**References:**

1) Buettner, D. (n.d.). How to Live to be 100+. Speech presented at TED Talk.
2) Garcia, H. and Miralles, F. Ikigai: The Japanese Secret to a Long and Happy Life. Penguin Books: New York. 2016.

**Bridge to Residency: A Pilot Fourth Year Flexible Elective**

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**Idea/Problem Statement:** Transition to residency is a challenge. A flexible elective was developed to help 4th-year medical students make a positive transition.

**Need/Rationale:** All health professionals must transition from being a student to the next phase of provider or advanced trainee. These transitions are stressful as the new professional must navigate a "discontinuity" or a "dynamic process in which the individual moves from one set of circumstances to another" (1). Successful navigation into residency training can result in satisfaction and successful socialization into the new setting, whereas a poor transition can contribute to burnout (2). Colbert-Getz (2016) identified three main factors that affect this navigation: 1) personal characteristics; 2) task readiness; and 3) contextual factors. One way to tackle this issue is through better preparation for the transition to residency, the focus of this project. A flexible elective (2 or 4 weeks) was piloted to help leaners develop skills needed to flourish in residency through work on the "personal characteristics" element of successful transitions.

**Methods:** Learners in this pilot were 43 4th-year medical students. Learner objectives were to be better able to: 1) Assess own character strengths, mindset, grit, and self-compassion, and utilize these tools in residency; 2) Apply key learning principles in teaching self and others; 3) Apply core habits/skills of effective professionals (e.g., be proactive; seek first to understand, then be understood) in leading self and others; 4) Develop a plan to enhance effectiveness as a resident through application of course concepts. Weekly activities included: a) reading an assigned book (3); b) writing a 2-page reflection to include interaction with the content and a SMART plan for utilizing new knowledge; c) attending a 90-minute online synchronous seminar to discuss the book and engage in application activities. Learner assessments were based upon book reflections, and on students' completion of their Journey Toward Self-Discovery Logs, which consisted of reflections on: 1) results of self-assessment tools; 2) a curated set of TED Hour podcasts/talks on character strength topics; 3) stories of how they applied these concepts in their work or life; 4) their plan for future use of these concepts in residency. Diverse in-class teaching/learning techniques were used, including a jigsaw exercise, peer feedback using a rubric; learner presentations, and small group exercises. Make-up assignments were completed for all missed sessions. The course was credit/no-credit.

**Evaluation Plan/Results:** The course was evaluated using a standard course evaluation. Impact is assessed in two ways: 1) a review of the 49 application stories submitted as a course assignment and 2) a follow up survey to be administered in October 2018 to gather data on perceived usefulness of course concepts, ways learners have utilized the concepts, and barriers faced in applying the concepts within their new settings. Overall, students gave the course a 4.82 out of 5 rating (SD = .47). The instructor rated each story as part of student feedback using a rubric. Collation of results indicated that most student were able to immediately apply the concepts: 17/49 (34.7%) were great stories (written about self, how used a course concept when things were not easy, shared an insight about self) and 27/49 (55.1%) were very good stories (written about self, intentional use of a course concept during that week ); while only 5/49 (10.3%) were not yet a story (other discussion of key concepts). Most frequently cited for application were concepts from Steven Covey's Seven Habits, growth mindset, self-compassion, resilience, grit, vulnerability and mindfulness. We also intend to conduct descriptive analyses of data being collected from a follow up survey to better understand the relative utility of each concept once students have begun residency training. Results of this mixed methods follow-up study will be integrated into the conference presentation or poster.

**Potential Impact/Lessons Learned:** This pilot addresses "personal characteristics," a key element to success during transition while also providing flexible training during residency interview months. Study

results offer indication of the course's potential to facilitate the transition out of "school" to the next career phase.

**References:**


1) Teunissen PW, Westerman M. Opportunity or threat: the ambiguity of the consequences of transitions in medical education. Medical Education. 45: 51-59, 2011
2) Colbert-Getz JM. Baumann S, Shaffer K, et. Al. What's in a transition? An integrative perspective on transitions in medical education. Teaching and Learning in Medicine: An International Journal. 28(4):347–352, 2016
3) Required Course books: a) Ambrose SA etal. How Learning Works: Seven Research-Based Principles for Smart Teaching The Jossey-Bass Higher and Adult Education Series, 2011; b) Covey, Stephen R. The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change.

**Never Stop Learning: Fostering Adaptive Learning in Clinical Contexts through Challenge-based Learning Cycles**

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**Workshop Description:** Continuous learning is a crucial part of medical students' and physicians' development. However, few resources exist to structure continuous learning in clinical contexts. This workshop will provide participants with an opportunity to practice an evidence-based, metacognitive approach to learning that will enable their students to continue learning across the career-span.

**Rationale:** While medical students, residents, and physicians have access to substantial informational resources, these learners often lack structured processes for making sense of this information and integrating it into their practice. This workshop will provide a simple, interactive, and engaging approach that can be propagated in multiple learning environments.

**Learner Outcome Objectives:** By the end of this session, participants will be able to:
1. Articulate the features of adaptive expertise and metacognition, such that they can explain and teach these features to their learners
2. Structure learning experiences in ways that promote adaptive expertise, such that their learners are able to continue developing their own cognitive, metacognitive, and social competencies
3. Teach their learners to use the challenge-based learning cycle to help structure their ongoing self-directed learning activities, such that learners are able to use CBLCs to guide their own learning

**Intended Participants:** This session is intended for participants who routinely work with medical students and residents in clinical contexts.

**Instructional Methods:**
Introduction (10 mins)
Modeling the Challenge (20 mins)
DIY Challenge Cycle (15 mins)
Small Group Discussion (15 mins)
Share out and Discussions (30 mins)

**Take home tools**: Challenge-Based Learning Cycle Template

**Gaming for the Win in Medical Education**

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**Workshop Description:** Our workshop focuses on the concept of gaming as a novel approach in medical education (for medical students and residents). We will introduce the concept of gaming (what makes a successful learning game, how to implement one, and how to facilitate an effective gaming learning climate) and discuss assessments. We will spend the bulk of our workshop in small groups developing learning games with respect to participants' unique home learning environments. We will end with a group debriefing.

**Rationale:** Gaming in medical education is being recognized as an increasingly powerful tool for curriculum delivery as it provides a fun, competitive, active method of delivering curriculum to medical students and residents. When designed and implemented effectively, gaming can improve resident/student morale, foster healthy teamwork and competition, and provide a fun and engaging venue to promote scholarship. We developed and have successfully implemented a year-long competitive gaming curriculum in Internal Medicine for medical residents, the “Cohort Cup.” This has become a mainstay in education at our institution and we have seen the amazing effect gaming, when designed and implemented appropriately, has on education, morale, and engagement in both the graduate and undergraduate medical domains. We will briefly share our results and provide an opportunity for educators to come together and develop their own learning games.

**Learner Outcome Objectives:**

1. To recognize the benefits and limitations of gaming as a curriculum delivery tool;
2. To understand important components when creating a learning game and to plan at least 1 learning game to be implemented in the learner’s home environment;
3. To understand barriers to implementation of learning games, and successfully navigate them.

**Intended Participants:** Any educator who is responsible for curricular delivery and would like to learn skills to facilitate active, engaging, and positively competitive gaming learning environments, including program directors and chief residents. Clerkship directors may also wish to attend.

**Methods:** Large group presentation (Method: digital slides); Breakout group session planning (Method: on-paper planning/design via small group); Group debrief (Method: large group discussion, digital real-time display)

**Activity Timeline:**

Introduction [15 minutes] Presentation discussing current literature on gaming and adult learning theory highlighting known benefits of active learning and gaming. Brief presentation of our gaming intervention which comprises over 10 different learning games and over 30 gaming sessions among third and fourth year medical students and medical residents. Our results demonstrate significantly improved attendance at conferences, improved resident and student satisfaction, and higher perceptions of educational value of education sessions after implementation of regular gaming.

Break-out Groups [60 minutes] Small groups will discuss their learning environments and each member will create the learning game of their choice. Templates for game development will be provided and creativity encouraged). We will circulate the room and provide guidance/feedback and suggestions to help new gamers navigate barriers.

Debrief [15 minutes] We will share experiences developing games and facilitate a large group discussion and discuss the future of gaming in Med Ed.

**Take home Tools:**
A guide for developing a game that can be implemented at the learner's home institution;
Templates for different game development;
Gaming in medical education rule list and specific techniques/approaches that can be used to facilitate a fun, safe, and effective gaming learning climate;
Gaming in Medical Education reference list.

**It Takes a Village: Empowering Parents, Partners and Friends to Prevent Medical Student Burnout**

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*Center for Supportive Relationships; University of Arizona, Tucson - College of Medicine; University of Nevada - Las Vegas School of Medicine; Frank H. Netter MD School of Medicine at Quinnipiac University; USF Health Morsani College of Medicine; USF Heal*

**Description of Curriculum:** Medical students are at high risk for burnout. Although support from family and partners is a powerful protective factor, medical schools rarely help these support givers stay connected to students. We report initial results from 5 schools implementing an innovative program, called "My MD-to-Be", which sends support givers regular updates about common experiences and challenges in the lives of medical students, to help strengthen their connection with support givers and reduce student burnout.

**Need/Rationale:** Medical students are at high risk for burnout, loneliness, depression and suicide, with a 2016 JAMA meta-analysis estimating the prevalence of depression or depressive symptoms at 27.2% and the prevalence of suicidal ideation at 11.1%. Although support from family, friends and partners is critical for the well-being of medical students, these support givers often feel alienated by the complex process of medical training, finding themselves unable to support students effectively. Medical training programs rarely offer resources to help support givers stay meaningfully connected to their students, despite the enormous protective value that these relationships confer on medical students. We discuss the experience of multiple medical schools with an innovative approach to helping support givers stay connected with medical students, by understanding students' daily lives and activities, in order to strengthen the social support available to medical students and reduce rates of burnout.

**Methods:** Five medical schools implemented an innovative program for improving student wellness, by helping families, partners and faculty advisers offer stronger support to students through greater awareness of the daily realities of being a medical student. The program, called "My MD-to-Be", allows students to identify support givers of their choice (typically parents, partners, and friends). Support givers who join the program receive regular and timely emails with educational resources about common experiences in the lives of medical students, tailored to each individual school and class. In addition, some schools provide these resources to academic advising staff, to heighten staff awareness of the student experience. Educational resources are sent every 1-2 weeks, and include topics like Starting Anatomy Labs, Imposter Syndrome, Being Asked for Medical Advice, Studying Biochemistry, Student Interest Groups, Studying for Step 1, Starting the Surgical Clerkship, Applying for Residency, and many more. Resources provide only generic information about medical curriculum and common student experiences, and do not include any information that is specific to an individual student. Each resource provides an overview of the experience, typical student reactions to this experience (physical, emotional, intellectual, social and/or spiritual), specific recommendations for ways to support the student with this experience, and resources for learning more about this experience.

**Evaluation Plan/Results:** For program assessment, we collect survey information from all stakeholders (students, support givers, and faculty advisors) about their REACTION, LEARNING, BEHAVIOR and overall IMPACT. Assessments include: REACTION: utilization rates (subscribing to the program, reading the educational resources) and ratings of program helpfulness. LEARNING: Improvement in the understanding of medical student experience. BEHAVIOR: support strategies used by support givers and academic advisers. IMPACT: student self-reported social support, burnout, and well being. At the time of submission (fall 2018), the program is just being launched and data collection is starting. It is already clear that students are enthusiastic about the program: student registration rates are around 70%, with each student inviting 2-3 support givers on average. Multiple support givers have already gone out of their way to express their gratitude and appreciation for the program (e.g., "These emails, with interesting and relevant info and really spot-on tips about how to engage with our daughter, are wonderful. Instead of having to labor to understand her med school experience, we can understand it, and in a way which respects her adulthood and professionalism. THANK YOU!!!!"). By the time of presentation at IME 2019,

the program will have been running for more than 6 months, and we will have collected rich preliminary data, as described above.

**Implementing a Spiritual Care Curriculum into a Pediatric Residency Program**

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**Description of Curriculum:** This curriculum is designed to teach physicians how to incorporate spirituality into their assessment of a patient's biopsychosocial needs. The curriculum consists of three interactive sessions designed to teach the following: first, the importance of spiritual care in medicine, second, the use of an evidence-based method for taking a spiritual history, and third, the utilization of interdisciplinary spiritual care resources to provide spiritual care for patients and their families.

**Need/Rationale:** An important aspect of caring for the biopsychosocial needs of patients is addressing their spirituality, and it has been shown that the majority of patients would welcome their physician's inquiry regarding their spiritual needs. Moreover, many physicians feel that faith plays an important role in healing. Despite this, large review studies have shown that physicians infrequently address the spiritual needs of their patients. One of the largest barriers that physicians report when asked about why spirituality is infrequently addressed is lack of training as to how to approach this topic with their patients. The ACGME emphasizes training physicians to address the biopsychosocial aspects of a patient's health through competency-directed curricula that address interpersonal communication skills. However, few curricula have been developed to teach physicians how to incorporate spiritual care into their practice and few spiritual care curricula exist amongst residency training programs.

**Methods:** A needs assessment survey was sent to pediatric residents during the 2017-2018 academic year to assess attitudes and practices involving spiritual care in medicine. A three-part, longitudinal and iterative curriculum was designed to address these identified needs and was implemented during the 2017-2018 academic year. Session one was a sixty-minute conference that provided an introduction to the importance of spiritual care in medicine and involved discussion of the basic tenets of five common world religions at a large, urban, academic children's hospital. Session two was a twenty-minute case-based role-play activity that taught residents how to take a spiritual history through use of an evidence-based spiritual assessment tool—the HOPE model. Session three was a sixty-minute case-based discussion panel comprised of physicians, nurses, chaplains, and social workers, emphasizing the interdisciplinary approach to spiritual care. A follow-up survey was distributed at the end of the curricular intervention. Surveys were anonymously coded to be able to assess changes in residents' knowledge of spiritual care, attitudes regarding its importance in medicine, and residents' ability to implement spiritual care into their clinical practice. Surveys were analyzed based on qualitative data provided on a likert scale of 1 to 5 (strongly disagree to strongly agree) and were assessed for statistically significant trends using the one-tailed paired-T test with a p-value of 0.05.

**Evaluation Plan/Results:** A total of 60 needs assessment surveys and 42 post-curriculum intervention surveys were collected. Comparing unique identifiers from pre and post surveys, a total of 23 participants were noted to have completed both surveys. Results were then analyzed using a one-tailed paired t-test with a p-value of 0.05. After the intervention, residents felt more strongly that addressing spiritual/religious beliefs with patients is a necessary component of a complete history (p=0.043) and felt more competent addressing spirituality/religion with patients and families (p=0.017). In addition, residents expressed increased interest in learning more about how to address spirituality/religion with their patients (p=0.029). Residents also felt that their comprehension of hospital-wide spiritual care resources increased after the intervention (p<0.001), moreover, more residents reported utilization of institutional spiritual care resources (43.5% vs 73.9%, p=0.008). Residents continued to report that lack of time was the most significant barrier to their incorporation of spiritual care in their practice (95.6% post-intervention); however, fewer residents felt that little understanding of how spiritual care affects patients was a barrier to their practice of spiritual care (34.8% vs 8.7%, p=0.011 via two-tailed paired t-test). Of all residents who completed the post-intervention survey, 92.9% either agreed or strongly agreed that this intervention added value to their residency education.

**Innovations Beyond the Competencies: Career Planning, Business Management, and Leadership**

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*[1] Riverside University Health System; [2] University of California Riverside*

**Description of Curriculum:** We will share our successes and lessons learned as we implemented an Inter-professional Career-Finance-Leadership course. The program was developed in collaboration with a local business school and trained a cohort of resident physicians and pharmacists. It covers career management skills, basic financial literacy, and leadership concepts. This session will provide an overview of our curriculum and framework of the Career-Finance-Leadership course.

**Need/Rationale:** An effective physician leader must possess a wide range of competencies beyond the clinical skills taught in medical school and residency training. Often essential, non-clinical career skills are overlooked and not incorporated into the traditional educational curricula. Neglected areas frequently include career strategy, financial literacy, and leadership skills. A multifaceted Career-Finance-Leadership course was developed to address these deficiencies in the curriculum.

**Methods:** The program was initially developed nine years ago in our Anesthesiology Department. In 2017, in conjunction with a local business school, we expanded the program to include residents from other specialties including Family Medicine, Internal Medicine, General Surgery, Neurosurgery, and Pharmacy. The course consisted of four two-hour sessions which included topics related to business management, leadership, and career planning. The four sessions were presented by faculty members and invited guest speakers. Throughout the course, residents were given assignments related to curriculum vitae development, networking strategies, and interview skills. In addition, participating programs were encouraged to hold specialty specific sessions for additional support. Residents who attended 75% of the sessions received a certificate of completion issued jointly by the business school and our institution.

**Evaluation Plan/Results:** At the conclusion of the 2017-18 program, we had six training programs participate in the course and issued 17 certificates to those who met the attendance requirement. A survey was completed at the conclusion of the course and included a variation on the net promoter score and 90% of participants said they agreed or strongly agreed with the statement “I would recommend this course to my peers”. Other deliverables included each participant adding a minimum of five new things to their CV, with one resident adding 25 new items to their CV. Based on the feedback and perceived needs by the different programs, the institution approved a budget for the following academic year to support the program.

**Barts X Medicine: Educating and Empowering Medical Students by Introducing Them to Digital Health**

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**Idea/Problem Statement:** Global Medical School syllabi have not reflected the importance of introducing future generations to digital health and exponential technologies.

**Need/Rationale:** Advances in Digital Health are allowing for continuous changes in the landscape of clinical practice and medical education: 1) Artificial Intelligence, Big Data, Apps, VR/AR, wearable technologies are all integrated across the scope of healthcare; allowing healthcare systems to function more efficiently, patients to become more informed consumers and undergraduate/postgraduate trainees to have more effective training; 2) It is necessary for all medical school syllabi to match this ongoing paradigm shift. A clear understanding of the scope of digital health and healthcare entrepreneurship is a skillset that will benefit all healthcare professionals and students. Barts X Medicine is the first digital health course embedded into a medical school curriculum. The course aims to introduce medical students to advances in digital health, allow them to reflect on the benefits and limitations of current advances, and kindle an entrepreneurial spirit as they develop as clinicians.

**Methods:** The 2018 Barts X Medicine course was given to 3rd year medical students at Barts and The London School of Medicine and Dentistry. The course extended over 12 weeks, broken into three phases. Phase 1: Introduction to Digital Health and entrepreneurship, 1.5 days of lectures given by leaders in Digital Health from the NHS and private sector including Prof Shafi Ahmed (CMO Medical Realities), Dr. Daniel Kraft (Founder Exponential Medicine) and Dr. Jack Kreindler (CHHP); Phase 2: Mentorship and Development of a novel idea, student selected groups are given 12 weeks and a mentor to research and develop a novel idea to improve clinical practice or education. The students were asked to develop a presentation for their proposal with assistance from Maxine Birmingham (CEO Thinkingaroundcorners); Phase 3: Group presentations, student groups were asked to present their idea to a Dragon's Den panel including Prof Shafi Ahmed, Dr Jack Kreindler, Dr Asif Qasim (Founder MedShr), Esther O'Sullivan (BMJ technology). The winning idea was given a 3 month sponsorship by BMJ to develop their idea. Qualitative data was taken by questionnaire and student interview. A pre-course questionnaire was taken assessing whether students had attended courses in healthcare innovation and their previous experience developing and presenting business plans. Post-course questionnaire assessed whether digital health and entrepreneurship was considered an important addition to the undergraduate curriculum.

**Evaluation Plan/Results:** Group demographics as follows: Female 60% (n.34), Male 40% (n.22). Age (years): <25 91% (n. 51), 25-30 7.1% (n.4), 30+ 1.8% (n.1). Postgraduate education: No postgraduate degree 49.1% (n. 27), BSc 38.2% (n.21), MSc 9.1% (n.6), PhD 1.8% (n. 1), MPharm 1.8% (n.1). 19.6% (n.11) students had previously attended courses in innovation and technology in the UK: - Doctorpreuners - Attended 2 events focusing on AI in medicine. - Royal Society of Medicine Innovation Day 2018. AI in Healthcare. 71.4% (n.40) strongly agreed whilst 28.6% (n.16) agreed that the Barts X medicine course improved their understanding of role of Digital Health in modern clinical practice and medical education. 71.4% (n.40) strongly agreed whilst 14.3% (n.8) agreed that Barts X Medicine is an important addition to the 3rd year curriculum at Barts and The London Medical School. 14.3% (n.8) disagreed that Barts X Medicine is an important addition to the 3rd year curriculum. The following statements were made: "very engaging lectures and inspiring speakers," "helpful advice on our future careers," "very informative and motivational," "I like the broad overview. Really good to have many perspectives of innovation and tech in healthcare," "I feel like this program should be introduced in the 1st/2nd year. Start making students aware of technology in healthcare," "I feel like many of the students still think quite traditionally and this sort of thinking should start early on to stimulate out thoughts."

**Potential Impact/Lessons Learned:** Barts X Medicine is the first digital health course to be embedded into a medical school curriculum. Proliferation of similar courses will create a new wave of clinicians with a clear understanding of the role of Digital Health and entrepreneurship in clinical practice and medical education.

**References:**


1) McCall M et al. Characteristics and Efficacy of Digital Health Education: An Overview of Systematic Reviews. Health Education Journal. April 2018.Vol 77 Issue: 5: 497-514.
2) Guza, Phyliss et al. Using Technology to Meet the Challenges of Medical Education. Trans Am Clin Climatol Assoc. 2015; 126: 260-270.

**Implementing the Flipped Classroom into Graduate Medical Education: Feasibility and Effectiveness**

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**Idea/Problem Statement:** The optimal model for curricula that foster interactive learning and applied clinical reasoning in graduate medical education (GME) is not known.

**Need/Rationale:** The “flipped classroom” is a pedagogical model in which classroom and self-study time are reversed, such that students prepare for class by reading and/or watching pre-recorded content, and class time is devoted to applying the new knowledge. Proposed benefits of this model include improved self-directed learning skills, more efficient use of student-teacher interactions, and increased learner engagement and retention (1). Only a few small studies exist regarding implementing flipped classroom curricula in the graduate medical education (GME) context and there is a paucity of data regarding flipped classroom feasibility in GME and its impact on resident clinical practice (2,3). We conducted a study to assess the feasibility, acceptability, and effectiveness of a flipped classroom strategy in teaching outpatient diabetes management to internal medicine residents, focusing on pharmacotherapy of type 2 diabetes.

**Methods:** Our flipped classroom intervention consisted of five concept videos on several classes of diabetes medications followed by class-time used for small-group case-based discussions. The intervention was delivered to second-year residents during the 2017-2018 academic year. Residents took an online knowledge test and survey assessing comfort level with management of type 2 diabetes prior to the flipped classroom intervention and repeated this survey immediately after and 6 month after the intervention. On the immediate post-intervention survey they were also asked about their opinion of the flipped classroom and on the 6-month post-test if they had considered or actually prescribed any new diabetes medications for their patients. The internal medicine residency’s PGY3 cohort of residents served as the control group. They received a 60-minute traditional didactic lecture on type 2 diabetes pharmacotherapy in the 2016-2017 academic year. We used a mixed effect model with a random intercept for comparison of knowledge test scores in the intervention group over time and to examine changes in self-reported comfort with medication selection and prescribing over time. We used a two-sided t-test to compare scores on the delayed recall post-test between the intervention and control groups. We also conducted a semi-structured group interview to better understand resident experiences with the intervention and used an inductive thematic analysis using emergent coding to identify themes.

**Evaluation Plan/Results:** Most (89.7%) residents preferred this format to a traditional lecture. Twenty-four residents completed the pre-test and at least one post-test (response rate 55.8%). Participants’ rated comfort in prescribing the newer antidiabetic agents increased from a mean of 2.29 on a 5-point scale before the intervention, to 4.04 immediately after the intervention (mean increase 1.7, 95% CI 0.44-1.40, $p<0.001$) and remained higher at 3.1 six months after the intervention (mean increase 0.91 from baseline, 95% CI 1.97-2.61, $p=0.001$). In the intervention group, the mean score on the pretest was 5.25 out of 10 (95% CI 4.68-5.81), 8.00 (95% CI 7.45-8.55) on the immediate post-test, and 7.10 (95% CI 6.54-7.65) on the 6-month post-test. There was no significant difference between mean scores of the intervention group on the 6-month post-test compared to the control group who had mean scores of 7.10 (95% CI 6.54-7.65) and 7.4 (95% CI 6.69-7.57) out of 10, respectively ($p=0.19$). At 6 months after the intervention, 11 of the 14 respondents (78.6%) had considered prescribing a medication from the drug classes discussed at this session and 8/14 (57%) had started one of these medications. Three key themes emerged from the semi-structured interview: preference for interactive, case-based learning over traditional lecture-based didactics; concerns regarding motivation and time for watching online videos outside of scheduled sessions; and interest in involving real, resident-generated cases.

**Potential Impact/Lessons Learned:** Residents expressed satisfaction with the flipped classroom curricular model, and showed changes in learning and reported behavior. However, its feasibility may be

limited by the preparatory time required given the unique time constraints in GME and merits further study.

**References:**


1) Chen F, Lui AM, Martinelli SM. A systematic review of the effectiveness of flipped classrooms in medical education. Med Educ. 2017;51(6):585-597. doi:10.1111/medu.13272
2) Cooper AZ, Hsieh G, Kiss JE, Huang GC. Flipping Out: Does the Flipped Classroom Learning Model Work for GME? J Grad Med Educ. 2017;9(3):392-393. doi:10.4300/JGME-D-16-00827.1
3) Riddell J, Jhun P, Fung C-C, Comes J, Sawtelle S, Tabatabai R, Joseph D, Shoenberger J, Chen E, Fee C, Swadron SP. Does the Flipped Classroom Improve Learning in Graduate Medical Education? J Grad Med Educ. 2017;9(4):491-496. doi:10.4300/JGME-D-16-00817.1

**Expansion of an Institutional E-Learning Initiative: Analyzing Medical Student Perceptions and Performance**

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**Idea/Problem Statement:** To evaluate the impact of curriculum-based, student-generated study sets and to investigate study methods utilized by first-year medical students.

**Need/Rationale:** The goal of the Keck Online Learning Initiative (KOLI) is to supplement the learning of first- and second-year medical students through memorization aid programs (MAPs). MAPs are study tools which utilize principles of spaced repetition and active retrieval practice to enhance learning and retention. MAPs, created by second-year medical students in KOLI, are based on lectures and laboratories from the first-year curriculum. Recent literature suggests that active retrieval practice (e.g. flashcards) improves examination performance (1). In 2015, Deng et al. demonstrated an association between completing 1700 unique flashcards and gaining an additional point on Step 1 (2). Research on institutional MAP development is minimal, with the exception of a study from the Johns Hopkins University School of Medicine on a flashcard database (3). Now in our third year, KOLI aims to evaluate the satisfaction and efficacy of yearly revisions of MAPs, explore lessons learned, and chart future directions.

**Methods:** Descriptive and exploratory analyses were conducted on data collected from KSOM administration, Memorang, post-exam surveys, and focus groups. KSOM's class of 2020 and 2021's de-identified class administrative data provided gender, undergraduate GPA, MCAT score, and FMS1, FMS2, FMS3, GI/Liver, Neurosciences, and Reproduction block exam scores. Memorang user data included number of facts studied, accuracy, and daily usage. Power users were defined as students who completed over 2,000 facts, while control users were those who completed 0 facts. Power and control users were matched using the 'LizzyM' score, defined as [uGPA*10 + old MCAT], and associated with exam scores using non-parametric testing. Post-exam survey data collected information regarding study methods and MAPs usage within and across blocks. Students reported usage rates and exam satisfaction via a 5-point Likert scale. Focus group data was obtained from a total of eight students who participated in one of three focus groups. The participants included those who used KOLI frequently, chose to use other MAPs rather than KOLI, or never used MAPs. Each focus group lasted about one hour, during which time students were asked to offer responses to 12 questions. The questions targeted the subjects of how they studied as undergraduates, how their study habits changed to adapt to medical school, what study methods they used, and what were the strengths and weaknesses of KOLI as a study resource.

**Evaluation Plan/Results:** There was a positive correlation between LizzyM score and FMS2, FMS3, and GI/Liver exam scores ($r=0.347$, 0.284, and 0.340, respectively; $p<0.01$ for all exams) for the class of 2020. When comparing exam scores between power users and control users with a matching variable of a LizzyM score of ± 1, average FMS2 (84.1% vs. 82.2%), FMS3 (86.4% vs. 86.3%), and GI/Liver (86.6% vs. 84.3%) exam scores were not significantly different. Preliminary survey results showed that the class of 2020 consistently used the same study method across different curriculum blocks. The primary study methods across blocks were as follows: attending live lectures ($r[FMS2xFMS3]=0.817$, $p<0.01$; $r[FMS3xGI]=0.836$, $p<0.01$), MAPs including KOLI ($r[FMS2xFMS3]=0.748$, $p<0.01$; $r[FMS3xGI]=0.711$, $p< 0.01$), and webcasting lectures ($r[FMS2xFMS3]=0.823$, $p<0.01$; $r[FMS3xGI]= 0.814$, $p< 0.01$). In regards to KOLI specifically, results showed a positive correlation of KOLI usage across the different blocks ($r[FMS2xFMS3]=0.597$, $p<0.01$; $r[FMS3xGI]=0.595$, $p<0.01$). Consistency of KOLI use as a study resource was assessed with the number of Memorang facts studied ($r[FMS2xFMS3]=0.766$, $p<0.01$; $r[FMS3xGI]=0.665$, $p< 0.01$). Use of other MAPs was also consistent across blocks ($r[FMS2xFMS3]=0.817$, $p<0.01$; $r[FMS3xGI]=0.667$, $p<0.01$). Analysis of the class of 2021's Memorang,

survey, and focus group data is in progress. Cumulative analysis across multiple classes and the effects of yearly improvements of KOLI is also in progress.

**Potential Impact/Lessons Learned:** First year medical students maintain consistent study methods across blocks. Early introduction of curriculum-based, student-generated study sets allows students to build better and long-lasting study habits. Finally, incorporating student feedback enables the evolution of KOLI as a learning tool.

**References:**


1) Schmidmaier R, Ebersbach R, Schiller M, Hege I, Holzer M, Fischer MR. Using electronic flashcards to promote learning in medical students: retesting versus restudying. Med Educ. 2011;45(11):1101-10.
2) Deng F, Gluckstein JA, Larsen DP. Student-directed retrieval practice is a predictor of medical licensing examination performance. Perspect Med Educ. 2015;4(6):308-313.
3) Bow HC, Dattilo JR, Jonas AM, Lehmann CU. A crowdsourcing model for creating preclinical medical education study tools. Acad Med. 2013;88(6):766-70.

**Educational Technology and the Flipped Classroom to Improve ECG Interpretation Training in Residents**

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**Idea/Problem Statement:** Improve the ECG interpretation skills of residents using a multimedia curriculum developed according to Gerlach Ely model in a flipped classroom.

**Need/Rationale:** The interpretation of 12 lead electrocardiograms is an essential skill for adult primary care physicians. A study in 2009 of internal medicine residents at the beginning of their training demonstrated low overall proficiency and little confidence in interpreting ECGs (1). In our program, residents have difficulties with the ECG interpretation. A previous study used Educational Technology to improve the ECG interpretation of Acute MI (2). We believe that using the Gerlach Ely model of instructional design to develop specific goals and objectives, multimedia constructed to achieve the objectives, and a flipped classroom will produce improvement in resident ECG interpretation confidence and performance.

**Methods:** The ECG curriculum will focus on the 40 internal medicine and 18 family medicine residents at our program. The course will consist of an initial and final survey, pretest, eight multimedia presentations, eight classroom sessions and a post-test. The multimedia module presentations that outline the steps necessary to interpret a 12 lead ECG will be viewed before the noon conference each week over the 8-week course. These modules will be constructed using the Gerlach and Ely model of instructional design with attention to specific step-wise objectives and careful selection of media. The residents will view the modules before the classroom activity. The classroom activity will consist of interpreting actual 12 lead ECGs. A quiz will start the session to review the declarative knowledge covered in the module. The resident will independently interpret ECGs chosen to illustrate the concepts in the module. The residents will then discuss their findings in a group. This format of the flipped classroom will provide the time needed for the residents to have supervised practice and feedback using actual ECGs.

**Evaluation Plan/Results:** The confidence and proficiency of each resident will occur before and after the ECG curriculum. A survey will be used to record the confidence level of each resident. A test of 25 ECGs will determine the proficiency of the resident's ECG interpretation skills.

**Potential Impact/Lessons Learned:** The demonstration of the effectiveness of using an Educational Technology model, objective driven multimedia presentations, and a flipped classroom applied to resident training in complex skills such as ECG interpretation can inform instructional design for other graduate medical training needs.

**References:**

1) D. Eslava, S. Dhillon, J. Berger, P. Homel, S. Bergmann Interpretation of electrocardiograms by first-year residents: the need for change J Electrocardiol, 42 (2009), pp. 693-697
2) Pourmand A, Tanski M, Davis S, Shokoohi H, Lucas R, Zaver F. Educational technology improves ECG interpretation of acute myocardial infarction among medical students and emergency medicine residents. West J Emerg Med. 2015 Jan;16(1):133-7

**Using Mobile Device Technology and Spaced Education Adaptive Algorithms to Teach ECG Interpretation**

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**Idea/Problem Statement:** ECG interpretation and cardiac arrhythmia management are traditionally lecture driven and non-adaptive with limited learner engagement.

**Need/Rationale:** ECG interpretation is fundamental to the ACGME internal medicine and cardiology curriculum. This creates a need for a dynamic, digitally delivered ECG curriculum that can associate ECG proficiency with level of training. Spaced-education is a system of repeated and interactive educational encounters used for quality improvement and clinical teaching. We have utilized a mobile device application to deliver ECG curriculum in an adaptive fashion with dynamic user feedback utilizing spaced-education theory

**Methods:** Mobile device interface which delivers ECG content in an adaptive spaced-education format was created. Enrolled trainees participate via mobile device app and/or email. ECG content is focused on arrhythmia interpretation and management. Baseline ECG interpretation competency is performed utilizing an assessment tool. Users receive real-time feedback regarding correct or incorrect answers with an explanation. Subsequent content delivered to the user is based upon the learner's prior correct/incorrect answers. Content is adaptive such that incorrectly answered questions are driven to the learner in a spaced-educational format. Concepts in ECG interpretation that pose difficulty to the learner are identified and appropriate content designed to improve knowledge gaps is delivered to the learner. ECG tracings have been tagged with identifiers reflecting level of difficulty. This data set allows for ECG interpretation ability to be correlated with level of medical training.

**Evaluation Plan/Results:** Total sample was 348 participants with assessed learners including: medical students (n = 92, 26%), medical residents/fellows (n = 190, 55%), and attending physicians (n = 66, 19%). Medical students were correct on first attempt 23%, correct on second attempt 53%, and failed third attempt 24% of the time. Medical residents/fellows were correct on first attempt 47%, correct on second attempt 36%, and failed third attempt 17% of the time. Attending physicians were correct on first attempt 74%, correct on second attempt 18%, and failed third attempt 8% of the time.

**Potential Impact/Lessons Learned:** The following generalizations could be made from our data: 1) All participants improved ECG proficiency by 30% using spaced-based mobile digital platform; 2) Greatest improvement in proficiency was inversely related to level of training; 3) Initial proficiency was independent of level of training.

**References:**

1) Kadish AH, Buxton AE, Kennedy HL, et al. ACC/AHA clinical competence statement on electrocardiography and ambulatory electrocardiography: A report of the ACC/AHA/ACP-ASIM task force on clinical competence (ACC/AHA Committee to develop a clinical competenc
2) Jr. JH, Hammill SC, Freed MS. The Complete Guide to ECGs. Jones & Bartlett Learning; 2008.
3) Surawicz B, Knilans T. Chou's Electrocardiography in Clinical Practice E-Book, Adult and Pediatric. Elsevier Health Sciences; 2008.

**Promoting a Culture of Feedback and Coaching**

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**Workshop Description:** This hands-on workshop will use short didactic presentations and role play to introduce participants to various approaches for nurturing a growth mindset and promoting a culture of feedback and coaching.

**Rationale:** The paradigm regarding feedback has shifted in the past several years. Feedback is effective and important for learning and performance. Coaching extends the feedback to include both the giving and receiving of feedback.

**Learner Outcome Objectives:** By the end of the workshop, participants will be better able to:
1. Explain the concepts of growth and fixed mindset
2. Discuss the relationship between mindset and feedback
3. Identify the essential elements in providing feedback
4. Describe features of constructive feedback
5. Discuss barriers to providing effective feedback
6. Analyze a feedback video using provided checklist
7. Discuss how coaching and feedback are related

**Intended Participants:** Any faculty member who provides feedback to learners.

**Methods:** During this 90-minute workshop, faculty will use a number of active learning approaches to enable participants to achieve their objectives. Short content presentations will be followed by small group work.

Introductions and expectations – 10 minutes
Objectives – 2 minutes
Small group activity – Participants will match statements pertaining to "growth" and "mixed" mindsets with the relevant mindset. They will then discuss how mindset can affect how learners receive feedback. – 15 minutes
Didactic on essential elements in providing feedback – 10 minutes
Small group activity – Discuss barriers on providing effective feedback. – 10 minutes
Didactic on features of constructive feedback – 10 minutes
Analyze a video of a faculty providing feedback using the provided checklist – 10 minutes.
Lecture-discussion on relationship between feedback and coaching – 15 minutes
Summary and conclusions – 5 minutes
Commitment to change – 3 minutes

**Take home tools:**
Feedback checklist
Relationship between feedback and coaching handout

**From Kahoot! to Food Wars: Game-Based Learning to Enhance Medical Education**

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**Workshop Description:** When successfully implemented, Game-Based Learning promotes teamwork and enhances learner engagement, satisfaction, and retention. In this hands-on workshop, faculty with experience incorporating GBL into Academic Half-Days will lead participants through a variety of games designed to transform their classrooms. Examples will include Food Wars to teach healthy nutrition, Minute to Win It and Family Feud as tools to build differential diagnoses, and Escape Room to enhance procedural simulation.

**Rationale:** Game-based learning (GBL) has been successfully utilized in health professions education to promote knowledge acquisition and retention (Nevin, Boeker), improve surgical simulation (Kerfoot), and reduce central line associated bloodstream infections (Orwoll). GBL is widely accepted by millennial learners who favor GBL over traditional lectures (Nevin, Boeker). Additionally, GBL promotes teamwork and can be an effective way to teach difficult concepts such as health care systems (Vithanage) and quality improvement methodologies (Orwoll).

**Learner Outcome Objectives:** Faculty presenters will share their 3-year experiences incorporating GBL into Academic Half-Day teaching sessions. Audience members will leave this workshop with a Game-Based Learning toolkit which they can take back to their home institutions and implement rapidly into their curricula. Small-group activities have been designed to promote the use of widely available and free resources to facilitate incorporation. Specific objectives for participants include:

1. to learn the benefits and pitfalls of GBL in medical education;
2. to understand how GBL fits into the larger curriculum;
3. to gain knowledge of commonly used games in order to select the game best suited to teach the desired material;
4. to learn how to run an effective GBL session.

**Intended Participants:** This workshop is targeted at medical educators of all levels. While the faculty presenters' backgrounds are in Internal Medicine, the interactive gaming activities have been designed to be applied broadly to learners of varying levels (medical students, residents, other health professionals) and specialties.

**Methods and Activity timeline:** The 90-minute workshop will consist of a brief introduction and overview of GBL in medical education employing Kahoot!™(5 minutes), followed by a series of four interactive game-based activities in which participants will be divided into small groups. Each game will take approximately 15 minutes to perform, and will include instructions, demonstration in the small groups, and large group debrief to review evidence, application, and pitfalls of the game. The 4 activities will consist of: (1) Food Wars to demonstrate nutrition education; (2) Family Feud™ to teach clinical reasoning; (3) Escape Room™ to instill best practices for invasive procedures; (4) Headbanz™ to enhance clinical examination. Other games will be introduced into these scenarios. The session will end with a 5-minute wrap-up session highlighting Poll Everywhere™.

**Take Home Tools:** Participants will leave with a resource booklet outlining the steps necessary to implement each of the demonstrated games into their curricula. For each game, there will be suggested learner pre-work, materials for faculty to prepare in advance or to bring to the session, best practices and pitfalls to avoid, and links to the gaming tools utilized in the workshop.

**Battling Bias: Understand How Implicit Bias Affects Us and How You Can Combat It**

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**Workshop Description:** Through the use of fast paced activities this session will teach participants the science behind implicit bias and the role it plays in current society, the medical decision making process, and patient health outcomes. We will explore our own bias and how it affects our work everyday. At the end the session, you will learn techniques to teach and combat bias.

**Rationale:** As we live and work in an increasingly diverse world, we face new challenges to the practice of medicine and to ensuring our patients have full and healthy lives. Studies have identified the biologic causes of health disparities between patients, as well as how socioeconomic status and social determinants of health affect patients. In 2003 the Institute of Medicine noted that “bias, stereotyping, prejudice, and clinical uncertainty on the part of health care providers may contribute to racial and ethnic disparities in health care.”

Since then research has demonstrated that despite their training and explicit beliefs, healthcare providers possess the same level of unconscious bias as the general population. The unconscious bias affects both actual and hypothetical patient care. There have been published studies that link poor health outcomes including mortality rates and patient adherence to stigmatized groups based on race, ethnicity, sexual orientation, age, English proficiency, and BMI.

Fortunately, implicit bias can be mitigated. Various institutions have demonstrated that through awareness strategies, control strategies and/or perspective taking strategies individuals may be able to reframe their internal heuristics to provide more equitable care.

**Learner Outcome Objectives:** By the end if this session, participants will be able to
1. Discuss implicit bias and the role it plays in healthcare.
2. Assess how implicit bias impact their own practice
3. Utilize techniques to help themselves and others combat implicit bias

**Intended Participants:** All audiences, especially medical professionals and educators.

**Activity Timeline:**
:00-:05 Intro: The Doctors’ Riddle
:05-:15 Background: What is Implicit Bias?
:15-:20 Large Group Activity 6 Squares: Match the photo of the person with their job description
:20-:25 Lecturette: The Role of Implicit Bias in Society- How has the media, entertainment and law shaped our world view
:25-:35 Lecturette: The Role of Implicit Bias in Medicine- How does provider bias affect patient outcomes.
:35-:45 Small Group Activity: “The Bearded Man”- Everyone look up the department chairs of your institution and count how many are men, how many have facial hair.
:45-:60 Large Group Discussion: Strategies and tools to combat bias and our unconscious patterns of behaviors
:60-:65 Self-Reflection Complete worksheet about a time when implicit bias played a role in your practice. Think of a time when you found a patient especially challenging or easy
:65-:75 Lecturette: Instructional tools for teaching learners deliberate practices to make the implicit explicit
:75-:90 Small Group Activity Discussion based review of case vignettes of real patient outcomes affected by implicit bias

**Comparison of Bleeding Cric to SIM Man for Training Students and Residents Emergency Cricothyrotomy**

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**Idea/Problem Statement:** A new, cheaper, and more realistic simulation model for teaching medical students and residents how to perform cricothyroidotomy.

**Need/Rationale:** A cricothyroidotomy is an emergent procedure done to establish an airway in a patient who would otherwise be unable to breathe (1). It is a procedure that requires precision and appropriate training as it is only done in emergent situations. However, residents are often unable to receive enough training on live patients in these situations as more senior physicians take priority in performing the procedure (2). Nearly half of all Emergency Medicine residents will never see a cricothyrotomy during training, and less than one quarter will perform one (1). Therefore, residents must resort to using simulation models to receive the appropriate training. These simulation models, however, can often be unrealistic or too expensive (2). Therefore, it is imperative to look for new models that can provide a more realistic experience simulation experience and decrease the cost of medical education. A new model, the Bleeding Cric has been developed by Dr. Alisa Wray and is relatively inexpensive and simple to produce. This study explores this new cricothyroidotomy training model to determine if it improves the user's comfort and success in performing cricothyroidotomies.

**Methods:** This study was a randomized control study with participants randomized to one of two cricothyroidotomy teaching models, either Bleeding Cric or the current standard, SIM man. At each station, participants were taught how to perform a cricothyroidotomy on their respective model by the same instructor. Participants were then tested by performing a cricothyroidotomy on a pig trachea, the gold standard for teaching cricothyroidotomies. Pre- and post-surveys were administered to each participant. The study endpoints were the completion of the final cricothyroidotomy by all participants on the pig model. The primary outcomes were participants' comfort levels as measured by the visual analog scale and participants success in performing the cricothyroidotomy on the pig model as measured by the objective structured assessment of technical skills for cricothyroidotomy. Comfort levels were assessed by pre- and post-intervention surveys which asked about comfort levels in performing a cricothyroidotomy via visual analog scales. Pre-surveys also included questions regarding the number of cricothyroidotomy simulations performed as well as the number of real cricothyroidotomies performed. Post-surveys also asked participants to rate via visual analog scale the realism of the pig trachea, bleeding Cric, and SIM man. Outcomes were assessed prior to teaching, during the pig trachea test, and after study completion.

**Evaluation Plan/Results:** This study will use previously validated tools to measure comfort (visual analog scale) and performance (objective structured assessment of technical skills for cricothyroidotomy). Individual scores were assigned using the validated Objective Structured Assessment of Technical Skills (OSATS) checklist (3). The Objective Structured Assessment of Technical Skills (OSATS) is made up of a series of elements scoring a participant's level of operative performance and the visual analog scale is a 100mm line with two endpoints ranging from 'not at all' to 'extremely'. Data were collected, tabulated, and coded by a research assistant not involved in any teaching aspects of the study. Means and standard deviations were calculated for OSATS scores and visual analog scores. Mean OSATS and visual analog scores were compared between groups using a t-test.

**Potential Impact/Lessons Learned:** If this study shows that the Bleeding Cric is equal to the current gold standard, it can potentially replace the current model, reducing costs of medical training while providing valuable experience to medical students and residents in performing these difficult procedures.

**References:**


1) Makowski AL. The Ethics of Using the Recently Deceased to Instruct Residents in Cricothyrotomy. Annals of Emergency Medicine. 2015;66(4):403-408. doi:10.1016/j.annemergmed.2014.11.019
2) Reiter DA, Lakoff DJ, Trueger NS, Shah KH. Individual Interactive Instruction: An Innovative Enhancement to Resident Education. YMEM. 2013;61(1):110-113. doi:10.1016/j.annemergmed.2012.02.028
3) Biron BL, Harris M, Kurien G, Campbell C, Lemelin P, Livy D, Cote DWJ, Ansari K. Teaching Cricothyrotomy: A Multisensory Surgical Education Approach for Final-Year Medical Students . JSurg70:248-253. JC 2013 Association of Program Directors in Surgery.

**Improving Simulation Learning for First Year Medical Students Utilizing Focused Feedback**

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**Idea/Problem Statement:** A revised simulation teaching model will enhance medical students' skill sets by utilizing focused and individualized feedback sessions.

**Need/Rationale:** Effective simulation training can result in better patient outcomes including better care, fewer complications, and improved safety margins (1, 2). Most simulation curricula have students participate in a scenario followed by a general de-briefing of the overall experience. These simulation ciricula do not include the opportunity to repeat the scenario and improve on their skills (1). When incorporated with individualized feedback simulation, however, participant learning is significantly enhanced (1). Focused individualized feedback helps students develop and refine skill sets, practice integrating them and apply them appropriately in future settings (Ambrose et al, 2011). Feedback can further enhance student learning by assessing the individual students' knowledge, skills, and comfort level, allowing the faculty to provide the feedback the particular student needs. The proposed intervention intends to improve simulation training to help first-year medical students build confidence and skills that can later be applied in direct patient care.

**Methods:** The enhanced simulation sessions utilizing focused feedback will occur in the University of Arizona Simulation Center approximately once per month over the first year of the medical school curriculum (n=80). Students will be randomly assigned to the current simulation curriculum (n=40) or to the revised simulation session (n=40). The current simulation curriculum has scenarios corresponding with the didactic blocks (e.g., cardiovascular, neurology, immunology). Students participate in one (or more) case scenario with general feedback after completion of all scenarios. The enhanced process will insert a focused feedback session after the initial scenario. Based on direct observation, this debriefing will focus very specifically on each team's (n=3-4) performance, with ideas for enhancing it. This will be immediately followed by the opportunity to repeat the simulation scenario. Faculty development will occur to train assigned faculty to provide a de-brief/feedback session in between simulation scenarios. The goal for learners is that they will more quickly build the capacity to learn from the scenarios and thus perform better in their first quarterly evaluation session.

**Evaluation Plan/Results:** The evaluation will include tracking, assessment of learner reaction, and assessment of learner performance. We will document completion of the faculty development and both versions of the simulations. Following each simulation session medical students will be asked to fill out feedback survey assessing their comfort level and confidence after the simulation session. Once per quarter the simulation directors will be observing the simulation/debriefing and rating each student's performance. Comparisons will be made between each of the two groups of students (control vs intervention) to assess the success of a focused feedback session in relation to self-reported confidence, learner reaction to the sessions and observed performance.

**Potential Impact/Lessons Learned:** Focused individualized feedback with an opportunity to practice skills is an approach that can be easily transferred to other universities with a simulation curriculum. This will result in enhanced medical student skills and application of this knowledge improving future patient care and safety.

**References:**

1) Motola, Ivette; Devine, Luke; Chung, Hyun Soo; Sullivan, John; Issenberg, Barry. Simulation in healthcare education: A best evidence practical guide. AMEE Guide No 82. Medical Teacher: Oct 2013 – Vol 35 – issue 10 – p 1511-30.
2) Coombs, Carmen MD, MPH; Shields, Ryan MD; Hunt, Elizabeth MD, MPH, PhD. Et al. Design, Implementation, and Evaluation of a Simulation-based Clinical Correlation Curriculum as an Adjunctive Pedagogy in an Anatomy Course. Academic Medicine: April 2017- Vol

3) Okudu, Y; Bryson, EO; DeMaria S; Jacobson, L; Quinones, J; Shen, B; Levine, AI. The Utility of simulation in medical education: what is the evidence? Mt Sinai Journal of Medicine: Aug 2009 – Vol 76 – Issue 4 – p 330-43.

**Using Simulation to Prepare Residents to Practice Effectively in the Opioid Crisis**

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**Idea/Problem Statement:** We will design and implement a simulation training event with the goal of improving residents' skills to address opioid dependency and build empathy.

**Need/Rationale:** Since the late 1990s there has been a five-fold increase in the number of overdoses and deaths from prescription opioids. From 1999-2016, there have been more than 350,000 deaths from opioid overdoses. An average of 115 people die of opioid overdose in America and it has been declared a national epidemic. Among the highest risk patients for overdose are ones diagnosed with Opiate Use Disorder (OUD) as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th edition. There is an estimated prevalence of 3-26% of OUD in primary care settings among patients with chronic pain on opioid therapy. Resident physicians are likely to encounter patients with addictions but many feel unprepared to diagnose and treat these patients. Despite caring for these high risk patients, residents have demonstrated lack of knowledge in answering questions about treatment strategies for patients with substance abuse and 72% of residents rated the quality of addictions training as poor or fair. Additionally, although the majority of Primary Care physician's acknowledge that OUD is an extremely serious problem, there is a high prevalence of negative attitude towards those patients. Among physicians surveyed, 89% felt that the patient was solely responsible for their addiction. Physicians need additional training that not only gives them the tools to successfully treat OUD, but also helps them build empathy and communication skills for these often difficult interventions.

**Methods:** We will involve all of our residents in the simulation training event but will have different learning objectives for each class. Our third -year residents will be expected to manage a patient encounter in which the patient demonstrates characteristics of an OUD. They will be expected to demonstrate active listening skills, empathic communication, accurately identify OUD, and partner with the patient to develop next steps in their care with a focus on safety. Our second-year residents will play the role of the patient who has an OUD. We will prep them with readings, the patient's background that lead to OUD, and how to play the role. Our goal is to help build empathy for this condition by having the residents identify with patients. Finally, our first-year residents will serve in an observation role along with a faculty member. They will observe the interaction through video and then participate in the debrief, as well as deliver feedback to the participants along with faculty members. After each simulation interaction, all of the residents involved will meet with a faculty member to debrief the scenario, discuss what went well and what needed to improve. The debrief will serve as the main opportunity for learning from the simulated interaction.

**Evaluation Plan/Results:** Third-year residents will be video observed during the standardized patient encounter. There will be set goals and a checklist for the visit which will include items such as the resident's ability to recognize the high risk patient with opioid use disorder, navigating a difficult patient interaction, motivational interviewing, and ability to guide the patient to the proper resources. In addition, there will be a group debriefing session where residents will be encouraged to discuss the encounter and difficulties they had or may have in the future dealing with this patient population. Second-year residents will be given a pre and post-encounter survey measuring their perceptions and beliefs about patients with Opioid Use Disorder. There will also be a separate debriefing session to discuss how they felt during the encounter and how that may or may not change their own practices in the future with the patient population.

**Potential Impact/Lessons Learned:** We will utilize simulation training to help give physicians tools to successfully diagnose and manage high risk patients with Opioid Use Disorder. Additionally, we are hoping to impact physicians' inherent biases by building empathy. Our ultimate goal is to decrease deaths from opioid overdose.

**References:**


1) Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016. MMWR Recomm Rep 2016;65(No. RR-1):1–49. DOI: http://dx.doi.org/10.15585/mmwr.rr6501e1
2) Kennedy-hendricks A, Busch SH, Mcginty EE, et al. Primary care physicians' perspectives on the prescription opioid epidemic. Drug Alcohol Depend. 2016;165:61-70.
3) Wakeman SE, Baggett MV, Pham-kanter G, Campbell EG. Internal medicine residents' training in substance use disorders: a survey of the quality of instruction and residents' self-perceived preparedness to diagnose and treat addiction. Subst Abus. 2013;34(4)

**System Dynamics View of Preventive Medicine and Medical Education: Developing a Dynamic Hypothesis**

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**Idea/Problem Statement:** To investigate the relationships in the system of preventive medicine and medical education by using system dynamics modeling.

**Need/Rationale:** Over the past 65 years, since preventive medicine has been recognized as a specialty in the US, it has continued to experience shortages in funding and teaching resources, instability and deficiency in social recognition of workforce, as well as the lack of clarity and consistency in content, duration, training strategies and outcomes across medical school curricula. While several aspects of allocations to and management of preventive services were, to some extent, investigated from system dynamics perspectives, the status of teaching preventive medicine in medical schools was not, to our knowledge, part of these considerations. Our goal is to conceptualize the major factors (variables) and their interactions that play into preventive medicine and medical education, generate a dynamic model of these interactions, and formulate a dynamic hypothesis that would reflect on the existing system's behavior over time.

**Methods:** A broad literature search on preventive medicine with association to medical education was performed to identify the key variables. Using Vensim software, a causal loop diagram (CLD) was designed to visualize the relationships between the identified variables and analyze the feedback structure of the system as the causes of its behavior. Then the dominant variables, the major influences and the delays in the system were identified. Finally, analysis of the types (patterns) of behaviors over time exhibited by the different parts of the system, as well as, the system as a whole was performed.

**Evaluation Plan/Results:** The developed model (CLD) allows visualizing preventive medicine and medical education as a complex system of interacting variables with a distinct internal system structure being a source of patterns of problematic system behavior – the existing challenges in preventive medicine. The model uncovered nonlinear relationships between content and quality of medical education in preventive medicine, the diversity of employment opportunities in the field, and social recognition of preventive medicine physicians.

**Potential Impact/Lessons Learned:** CLD modeling facilitates understanding and interpretation of the interactions and feedback loops that cause and/or contribute to the existing challenges in preventive medicine. This allows for developing and testing policies for optimization of preventive medicine without prohibitive costs.

**References:**

1) Peik SM, Mohan KM, Baba T, Donadel M, Labruto A, Loh LC. Comparison of public health and preventive medicine physician specialty training in six countries: Identifying challenges and opportunities. Med Teach. 2016;38(11):1146-1151.
2) Hull SK. A Larger Role for Preventive Medicine. AMA J Ethics. Virtual Mentor. 2008;10(11):724-729.
3) Foster T, Regan-smith M, Murray C, et al. Residency education, preventive medicine, and population health care improvement: the Dartmouth-Hitchcock Leadership Preventive Medicine approach. Acad Med. 2008;83(4):390-8.

**Guideline Based Core Curriculum**

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**Idea/Problem Statement:** How can curriculum review lectures, a staple in our GI training program's conference series, to be better structured, engaging and higher yield?

**Need/Rationale:** Curriculum review is a type of lecture that is part of our GI training program's conference series. Usually it takes the format of either questions with multiple choice answers or "Jeopardy" style questions. Senior fellows are responsible for the content and use question banks or other review sources to create questions. Usually these questions are chosen arbitrarily. How could we change the curriculum review lectures to be better structured, more engaging and higher yield? We propose creating a catalog of topics discussed for each curriculum review lecture and addressing different topics for future lecture would improve the structure of the lectures. Furthermore, using guidelines to illustrate a few topics to focus on for each curriculum review lecture and delving into specific the recommendation with evidence for each question discussed would make the lectures more engaging. Identifying and focusing on topics that the fellows have a difficulty understanding would make lectures higher yield.

**Methods:** The GI training exam (GTE) taken by the majority of GI fellows in training is meant to be "formative…to provide feedback to the trainee and program director which can inform future teaching and learning opportunities" (1). We plan to use the results of the GTE to identify knowledge deficits among fellows in the program and choose a few of these topics to focus on during the curriculum review lectures. Questions on selected topics will be discussed in the context of the GI society guidelines (from the American College of Gastroenterology, American Gastroenterology Association, American Society for Gastrointestinal Endoscopy, and American Association for the Study of Liver Disease) with discussion about specific recommendations and evidence during each curriculum review lecture. We hope to cover different topics at each curriculum review lecture so that over the course of the year trainees' knowledge base will grow, specifically in the areas in which they are weak. Other programs have also used GTE results to guide curriculum and have noted improvement in GTE scores (2).

**Evaluation Plan/Results:** One curriculum review was implemented with these changes in place and overall written feedback was positive. 11 out of 12 fellows (includes two of the authors) found incorporation of guidelines into the curriculum review lecture beneficial, and 5 out of 8 of the senior fellows noted that this new format was more engaging. Two-thirds of the fellows did want the GTE results to guide the topics discussed. Of note, almost all of the fellows (11 out of 12 fellows) currently use the GI society guidelines and 6 of the 8 senior fellows currently use the GTE results to guide self-study. We have only had one curriculum review thus far in the year, but plan to implement the proposed changes in upcoming curriculum review lectures during this academic year.

**Potential Impact/Lessons Learned:** By using GTE results to guide topics or questions chosen for curriculum review lectures and incorporating guidelines with questions we hope to improve the knowledge base of fellows. We plan to compare this year's GTE results with prior year's score to see if there is a measurable improvement.

**References:**

1) Sayuk G, Ikuo H, Fitzgerald J.T, Stansfield B, Armbruster B.A, Jones T, Akinyi J, Willis C. AGA Gastroenterology Training Exam (GTE): Progress Report. Gastroenterology, Volume 142, Issue 2, 2012, Pages 201-204. E2, ISSN 0016-5085, https://doi.org/10.10
2) Inra J.A, Pelletier S, Kumar N.L, Barnes E.L and Shields H.M. An active learning curriculum improves fellows' knowledge and faculty teaching skills. Advances in Medical Education and Practice. 2017 May; 8:359-364.

**Increased COMLEX-USA Level 1 Anatomy Performance Scores with Implementation of Flipped Classroom**

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**Idea/Problem Statement:** As reported by NBOME, the TouroCOM-NY (Harlem) 2010-2013 first pass rate averaged 82.82% against the national first pass rate average of 89.69%.

**Need/Rationale:** Clinical Anatomy, in the first year at Touro College of Osteopathic Medicine – New York (Harlem Campus), or TouroCOM-NY (Harlem), was offered as didactic lectures and laboratory sessions with both written and practical examinations with guidelines provided for students in the syllabus with course expectations, topics, class schedule, and learning objectives beginning in Fall 2008. Content was delivered in class via PowerPoint presentations for 50 minute sessions. Attendance varied between twenty and sixty percent. As reported by NBOME, TouroCOM-NY (Harlem) COMLEX-USA Level 1 discipline mean scores in anatomy ranged from 450.73 in 2010 (in correlation with when the students of the Fall 2008 class took the COMLEX) to 507.33 in 2013. The national mean during this period ranged from 484.48 in 2010 to 521.35 in 2013. The first pass rate during this time period averaged 82.82% against the national first pass rate average of 89.69%.

**Methods:** In Fall 2012, Clinical Anatomy course content delivery and access changed to pre-recorded video lectures by faculty. Students were able to access course content via a server which housed a video library of course topics in accordance with the syllabus. No classroom lectures were offered; however, students were invited to participate in quiz and discussion sessions in the classroom, 50 minutes per week per course.

**Evaluation Plan/Results:** Classroom time was decreased to one-third. Students have the ability to watch lecture videos without the requirement of being present in class, with the additional benefit of standard video options, such as pause, rewind, and increased or decreased speed. Discussion of topics in the classroom setting is encouraged and is often animated and dynamic. Students are better able to manage their time and come to class prepared for quizzes and discussion. Students receive minor credit for the quiz and leave sessions aligned in their understanding of topics. Class attendance is typically 85% and may reach 100%. The faculty at TouroCOM-NY (Harlem) are able to provide consistent and regularly improved content presentations via video lectures, while freeing time for scholarly activities. Students manage their study efficiently during time which is free of scheduled lectures.

**Potential Impact/Lessons Learned:** TouroCOM-NY (Harlem) COMLEX-USA Level 1 mean discipline scores in anatomy improved from 522.26 in 2014 to 575.68 in 2017 compared to the national mean of 531.13 in 2014 and 557.25 in 2017. The first pass rate increased from 87.29% in 2013 to 97.74% in 2018 (mean national first pass rate: 92.91%).

**References:**

1) McCullough, M. J., & McCullough, M. G. (2016). Student learning and retention in introductory anatomy flipped class models compared to traditional lecture format. The FASEB Journal, 30(1_supplement), 785-12.
2) McLaughlin, J. E., Roth, M. T., Glatt, D. M., Gharkholonarehe, N., Davidson, C. A., Griffin, L. M., ... & Mumper, R. J. (2014). The flipped classroom: a course redesign to foster learning and engagement in a health professions school. Academic Medicine, 8
3) Tune, J. D., Sturek, M., & Basile, D. P. (2013). Flipped classroom model improves graduate student performance in cardiovascular, respiratory, and renal physiology. Advances in physiology education, 37(4), 316-320.

**Transformative Learning for the 21st Century: The Global Active-Learning Curriculum**

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**Idea/Problem Statement:** A competency-based curriculum which uses the flipped classroom, team-based learning & early integration of the basic sciences with clinical medicine.

**Need/Rationale:** Traditionally, the discipline-based curriculum has been the mainstay offered by medical schools worldwide. However, the realization that there are numerous shortcomings with this curriculum has stimulated many schools, in the last 50 years, to experiment with various curricular reforms in an attempt to improve medical education. The Lancet Commission shed light on the deficits of existing education systems and the urgent need to produce health professionals who can mobilize knowledge, engage in critical thinking and participate in patient-centered care. The Commission called for instructional reforms including system-based, integrated curricula with individualized learning curves and a range of learning activities resulting in transformative learning.

**Methods:** CALMED-SoM has been established with the intent of being an innovative, socially accountable medical school producing graduates optimally prepared for the evolving practice of medicine. CALMED-SoM has designed an innovative student- and patient-centered curriculum that includes successful pedagogies collated from the most advanced educational institutions around the world. This competency-based curriculum, referred to as the Global Active-Learning Curriculum, incorporates adult learning strategies and various techniques for active learning such as the flipped classroom (basic science lectures are all pre-recorded), team-based learning and classroom activities such as debates and role plays. The curriculum is taught in system-based modules and driven by clinical-presentations emphasizing an early focus on developing clinical reasoning skills. The curriculum requires students from the very first module to integrate the basic sciences, clinical application, as well as environmental and social determinants of health.

**Evaluation Plan/Results:** The evaluation of the curriculum will include student assessments of medical knowledge, critical thinking as well as inductive and deductive reasoning skills. To gauge the extent to which this curriculum is truly transformative, the evaluation tools also gauge the students' ability to search, analyze and present information; The ability of students to work in teams; The ability of students to identify and leverage resources to address health priorities.

**Potential Impact/Lessons Learned:** This curriculum, thoughtfully designed to produce change agents for the health system, has the potential to be replicated globally. Many schools are currently responding to the Lancet Commission by revising curricula and would benefit from the blueprint and resources of the CalMed model.

**References:**

1) Frenk J, Chen L, Bhutta ZA, et al. (2010) Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. The Lancet 376(9756):1923-1958.

**DDx Debates: An Innovative Approach to Teach Professional Communication**

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**Idea/Problem Statement:** An Oxford-style debate series that cultivates interprofessional communication skills and discussion of ethical issues among medical and law students.

**Need/Rationale:** In 1985, The Liaison Committee on Medical Education (LCME) introduced a stipulation for all medical schools to include material on “medical ethics and human values,” yet there is a lack of consensus on the best pedagogical approach to implementing this education (1). The authors propose “The Differential” as one method to facilitate measured, thoughtful communication presenting at least two points of view on controversial issues in medicine while promoting skills in interprofessionalism. At the authors’ institution, medical ethics is taught didactically and discussed in small groups, resulting in many students being unconvinced that they had been academically instructed on multiple sides of an issue. By participating as a debater or observer, students will have the opportunity to see measured, careful, and professional discussion of sensitive or ethical issues while they develop an understanding of the appropriate language that should be used to discuss these topics in an interprofessional setting.

**Methods:** “The Differential” has two target learner groups: the first, medical and law students who will act as debaters, the second, medical and law students who attend the debates to observe. We are planning to host two debates during the upcoming academic year (October 2018 and January 2019), both designed to fit in a one-hour lunch session. Each debate will be moderated by an Executive Board. In preparation for the debate, the Executive Board selects a “topic advisor” from the faculty to provide guidance to both teams. The debate begins with an introduction to the topic, and a statement of the motion to be debated. Next, the audience votes in an anonymous poll asking their position on the motion. The affirmative and negative team then receive 5 minutes each for their opening arguments. The next 10 minutes are dedicated to audience questions, submitted electronically, vetted by the Executive Board for scope, and read aloud to the debaters by the moderator. Five minutes are then provided to each team to argue secondary statements on their position. After these statements, teams are allowed 3 minutes to rebut, affirmative team leading. The moderator closes the debate following the negative team’s rebuttal. A second poll of the audience is taken at this time. Finally, the Executive Board reveals the results of both polls side by side, and declares the winner of the debate.

**Evaluation Plan/Results:** Our two debates (conducted in October 2018 and January 2019) will be evaluated via careful account of audience attendance. Comments and recommendations will be gathered via evaluation forms that will be sent to all debate participants and interested attendees. Development of skills in interprofessional communication and comfort in discussing sensitive ethical issues will be additionally addressed in the evaluation form sent to debaters.

**Potential Impact/Lessons Learned:** The authors hope to see this method implemented as a curricular modality to achieve professionalism and communication goals in undergraduate medical education.

**References:**

1) Carrese, Joseph A., et al. “The Essential Role of Medical Ethics Education in Achieving Professionalism.” Academic Medicine, vol. 90, no. 6, June 2015, pp. 744–752., doi:10.1097/acm.0000000000000715.

**Using a 'Super Huddle' to Promote Interprofessional (IP) Collaboration in an IP Training Program**

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**Idea/Problem Statement:** Efficient problem solving of patient issues can quickly get lost in the interprofessional care of complex and marginalized populations.

**Need/Rationale:** Interprofessional teams caring for complex and marginalized populations with mental illness, substance misuse, and social determinants of health issues require intricate IP collaboration to deliver patient centered care. It is imperative that team members have efficient discussions of patient needs, urgent problem solving, and coordination of communication between all team members. These meaningful interactions can quickly get lost in the clinic flow or may not happen at all. As such, our IP team augmented an existing pre-clinic huddle format for primary care teams to enhance IP collaboration and teamwork, primary care mental health integration, work satisfaction and practice climate, and most importantly, patient care (Rodriguez, Meredith, Hamilton, Yano, & Rubenstein, 2014). Here, we describe the Super Huddle (SH), preliminary findings from our evaluation of its role and impact, and lessons learned from its ongoing development.

**Methods:** The SH emphasizes IP collaboration in a structured brief pre-clinic huddle designed to coordinate care for complex patients. These daily huddles include faculty and trainees from primary care, mental health, pharmacy, social work, and nursing. First, primary care teamlets huddle to review the roster of patients scheduled to be seen for that day, coordinate patient care, and identify patients needing further IP consultation. To discuss patients needing further IP collaboration, immediately following the teamlet huddle, mental health providers, social workers, pharmacists, and RN care managers join for a 10-minute SH. During the SH, critical updates for scheduled patients are shared with the team, pertinent information is offered by other providers, emergent problems are deliberated, and collaborating team members coordinate more comprehensive and appropriate care. Our evaluation revolved around two phases of evaluation during the year – one more descriptive (occurring over the course of one week each month), and another more longitudinal and impact-focused. The regular evaluation included developed measures that captured frequency and variation in interprofessional interaction and the perceived benefit of the SH on each provider's care plan for that given day. The mid- and endpoint captures focused on the trainees, were also developed in-house, and examined changes in attitudes, behaviors, and knowledge related to interprofessional collaboration and coordination of care.

**Evaluation Plan/Results:** Given our periodic data collection method (one week/month), the descriptive SH evaluation yielded over 400 SH evaluation questionnaires from both faculty and trainees. These non-unique questionnaires represented the activity of 37 super huddles and over 30% of the submitted evaluations came from trainees representing internal medicine, pharmacy, psychology, advanced practice nursing, and psychiatry. Over the course of these 37 SHs, trainees were involved in 216 interactions with other trainees and faculty, regardless of discipline. However, of those 216 interactions, 161 (74.5%) were interprofessional, or with a trainee or faculty from another discipline. These interprofessional interactions also seemed to benefit trainees in various ways. In particular, trainees indicated that SHs were most helpful in coordinating care with other professions critical for their patient's care, better understanding the history behind their Veteran patient, and increasing their confidence in providing care to their patients. The impact-focused surveys were completed by 20 interprofessional trainees. Although mostly positive, upward trends were observed in all measures, the SH did contribute to an increase in knowledge of how the roles and responsibilities of primary care and mental health disciplines integrated ($p<0.01$). We believe further investigation is necessary to examine if the SH impacted specialties or level of learner differently.

**Potential Impact/Lessons Learned:** The SH can offer a streamlined yet comprehensive model to promote IP collaboration and coordinate complex patient care in a time and space restricted environment. However, as new trainees come onboard and staff turnover, challenges revolving around maintaining efficacy and efficiency have arisen.

**References:**

1) Rodriguez, H. P., Meredith, L. S., Hamilton, A. B., Yano, E. M., & Rubenstein, L. V. (2015). Huddle up!: the adoption and use of structured team communication for VA medical home implementation. Health care management review, 40(4), 286-299.

**Use of a Quick Multimedia Learning Module Facilitates Knowledge Acquisition of Cardiac Physiology**

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**Idea/Problem Statement:** Due to the fast-paced nature of preclinical courses, there are few opportunities for students to review previously covered topics.

**Need/Rationale:** As activation of prior knowledge is a critical step in learning, review becomes an integral part in understanding and retention. Due to the comprehensive quality and fast-paced nature of the medical school curriculum, there are limited opportunities within the course structure for students to review previously covered topics. This in turn increases the challenge medical students face when learning subsequent material. Current learners often utilize short, commercially available media-based learning objects for the purpose of review. Although adoption of these technologies has been increasing among students, traction among faculty educators has been slow because such review materials are not tailored to specific curricula being taught. This project aims to leverage popular emerging technologies to explain challenging topics in first-year physiology, in such a way that they are tailored to the ISMMS curriculum and can be useful for subsequent learning.

**Methods:** Topics for inclusion were solicited from the Year 1 physiology and Year 2 cardiology course directors and selected through an analysis of the content matter of USMLE Step 1 question banks. The multimedia was then created by the research team, with help from our instructional designers and medical illustrators. Iterative content revisions were made through educator and course director feedback. The modules were then made available to the medical students as an optional cardiology resource through the Blackboard LMS. Subjective and objective measures were collected with an anonymous pre- and post-intervention survey. Recall and knowledge application were tested using questions adapted from a Step 1 question bank. Student attitudes regarding the intervention were also assessed on a 5-point Likert scale.

**Evaluation Plan/Results:** Preliminary results show that 45 (32%) of 141 total students accessed the optional nine-minute cardiac cycle video. Twenty-one (47%) completed the pre- and post-surveys in their entirety, with the rest answering at least one of the questions. The mean percent correct on the knowledge questions increased from 40% pre- to 93% post-intervention. A majority of respondents strongly agreed/agreed with statements assessing enjoyment (82%), understandability (90%), and usefulness (86%) of the review module. Furthermore, 76% would recommend it to other medical students, and 79% strongly agreed/agreed that use of similar online modules should be encouraged in other medical school courses.

**Potential Impact/Lessons Learned:** Initial data suggest that use of quick, independent multimedia learning modules to review concepts can facilitate recall, which aids the application of previously learned knowledge to more challenging topics. Due to these results, we are expanding this form of learning to other second-year courses.

**References:**

**A Pilot Study of Peer to Peer (PTP) Ultrasound Training for Undergraduate Medical Students**

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**Idea/Problem Statement:** To evaluate the efficacy of peer-to-peer (PTP) ultrasound training for medical students utilizing a unique, student-driven training model.

**Need/Rationale:** As the use of point-of-care ultrasound (POCUS) rises in both primary care and specialties (2), there is an increasing need to incorporate POCUS training in undergraduate medical curriculum (1,3). However, one major barrier to increased POCUS training is the faculty investment needed to effectively train students. One proposed solution is to utilize senior medical students, residents, or fellows to provide adjunct instruction, known as peer-to-peer training (PTP). Although PTP has been shown as a viable way to deliver clinical skills training in the medical school curriculum (1), the optimum way to incorporate PTP into undergraduate medical training has not yet been established. We aim to evaluate the efficacy of a unique PTP model, examining POCUS knowledge and confidence across two successive generations of student trainers.

**Methods:** This is a retrospective study. 2nd-year medical students (MS2) (n=4) previously trained by peers taught ten different ultrasound examinations to 1st-year medical students (MS1) (n=10). Total PTP training time was ten hours over ten sessions. Students with prior ultrasound experience were excluded from the study. Theoretical knowledge and practical skills were measured at the end of the training period using a multiple-choice questionnaire (MCQ) and an objective structured clinical evaluation (OSCE). For purposes of analysis, the MCQ and OSCE were divided into material covered during PTP training and faculty-led + PTP training. Three groups of students were evaluated: MS2, MS1, and a control group of 1st year medical students who had not received PTP training (n=5) . MS1 and control groups were also given surveys to measure their confidence regarding their ultrasound skills and comfort with a student trainer. A student T test analysis was done to compare the MCQ and OSCE scores of MS1 and control. The students' level of confidence and comfort in their training was measured using a Likert scale.

**Evaluation Plan/Results:** The MS1 group performed better than the control in MCQ and OSCE ($p=0.046$ and $p=0.0001$, respectively). There was no difference found between the MS1and MS2 groups ($p=0.37$ and $p=0.061$ for the MCQ and OSCE, respectively). In the faculty led + PTP training portion of the OSCE, MS1 performed better than the MS1 who had not received PTP training group ($p=0.048$). Sixty percent of students in the MS1 group stated they felt more comfortable learning ultrasound from a student than a professor.

**Potential Impact/Lessons Learned:** PTP training can adequately improve confidence in ultrasound and improve ultrasound skills. Further studies are necessary to conclusively evaluate the efficacy of PTP training as an effective way to train future student trainers of ultrasound in undergraduate medical education.

**References:**

1) Dinh VA, Fu JY, Lu S, Chiem A, Fox JC, Blaivas M. Integration of ultrasound in medical education at United States medical schools. J Ultrasound Med. 2016;35(2): 413-419. doi: 10.7863/ultra.15.05073
2) Bhagra A, Tierney DM, Soni NJ. Point-of-care ultrasonography for primary care physicians and general internists. Mayo Clin Proc. 2016 Dec;91(12):1811-1827. doi: 10.1016/j.mayocp.2016.08.023. Epub 2016 Nov 5.
3) Stone-McLean J, Metcalfe B, Sheppard G, et al. Developing an undergraduate ultrasound curriculum: a needs assessment. Muacevic A, Adler JR, eds. Cureus. 2017;9(9):e1720. doi:10.7759/cureus.1720.

**Using the Biopsychosocial Model to Help Undergraduates Build AAMC Core Competencies**

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**Idea/Problem Statement:** Previous courses use the biomedical model to explore disease, but contemporary holistic disease treatment requires a biopsychosocial model approach.

**Need/Rationale:** Up until now the course, Biological and Behavioral Basis of Disease, was conceptualized to fulfill the lowest levels of Bloom's taxonomy of the cognitive domain. Moreover, the course did not bring behavioral concepts into the discussion beyond the oversimplification of physical activity/inactivity as a "behavioral" basis of disease. In the revision of the course, the instructors want to align new course objectives with core competencies of the AAMC in the domains of living systems, human behavior, and interpersonal skills. The authors are seeking guidance from others who have experience working with learners at the early end of the medical education continuum. How can this curriculum be structured to have outcome measures?

**Methods:** Given the interprofessional nature of the collaboration, both authors have made efforts to straddle both biology and psychology in introducing chronic disease models. Moreover, they have strived to share their forum with other health professionals representing different facets of medicine in order to illustrate the importance of interpersonal skills. Assessments include multiple choice tests, in-class activities where students are asked to demonstrate critical thinking about a controversial health topic or arena such as defining a disease or attempting to counsel a person with a genetic condition.

**Evaluation Plan/Results:** Three tiers of evaluation are currently built into the course. Students complete multiple choice exams based on required reading material. They submit work in class which queries how they are synthesizing the presentation given to them. How do they define the clinical dilemma? What are plausible treatment approaches? The third tier of student assessment is an essay on an individual with a chronic disease using the biopsychosocial model as a framework. A rubric has been created to identify how well they synthesize all the elements of this model to pain a complete picture of a person's disease.

**Potential Impact/Lessons Learned:** We want our students to understand AAMC core competencies better after they complete this course. We also want to change learners' attitudes to embrace this model in the hopes that they can define health better for their patients. Lastly we want this course to spark more cross-campus collaborations.

**References:**

1) https://www.aamc.org/admissions/dataandresearch/477182/corecompetencies.html

**Learning CanMEDs through Teaching Quality Improvement in the Health-Care System for Medical Students**

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*University of Alberta*

**Idea/Problem Statement:** Using semi-structured interviews to capture students' development of CanMEDs through a course in quality improvement of the health care system.

**Need/Rationale:** The CanMEDs Physician Competency Framework was introduced by the Royal College of Surgeons of Canada as a requirement for all residency programs. It was officially released in October 2015, eventually being endorsed by 12 Canadian medical organizations. The CanMEDs includes competencies and skills that are required for all physicians, regardless of medical or surgical residency program. These same competencies were also adopted by some undergraduate programs. These competencies include being a collaborator; communicator; health advocate; professional; scholar; and leader - all building toward becoming a medical expert. Parallel to this, Quality Improvement [QI] of the health care system is becoming increasingly of demand to be introduced to residents. Different versions and courses are available. We have designed a student's version of it, aiming at introducing the idea to multi-disciplinary students that may be exposed to the health care system in different angles. Our idea is to capture a qualitative snapshot from multi-disciplinary students' response after 6-8 weeks of QI course electives. We plan to achieve this through understanding what students have learned about the CanMEDs from these QI electives.

**Methods:** We plan to study the effect of teaching quality improvement in the health care system for summer elective students in two medical schools; University of Calgary and University of Alberta. The study will measure students' perception of the CanMEDS and if quality improvement protocols and study of the health care system will help them cover all the seven roles which need to be fulfilled in a practicing physician. Semi-structured interviews are used to measure students' perception. The QI course that was designed for the students is a flipped course that was introduced separately both at the University of Alberta & University of Calgary as a pilot study with the mandate of making the students in different health-related disciplines aware of the presence of tools to study the health care system, how to prioritize the problems and design a plan for intervention. Qualitatively, the students started to identify some or all the CanMeds core competencies and highlight them. They could sometimes trace back where they could see a certain competency being developed through the course. We will capture their responses using a semi-structured approach, allowing us to interact with participants in a manner that is less rigid in tone and creates a balance in terms of the interviewer-interviewee relationship. Questions will be presented in a non-leading and non-biased manner to ensure authenticity and impartiality of the information being collected. Interviews will last 45 minutes

**Evaluation Plan/Results:** In qualitative research, the data analysis and data collection occur together as the study proceeds from beginning to end. Study data will be digitally recorded to facilitate data analysis. Data will be transcribed by the Comma Police (www.commapolice.com) and subsequently entered as verbatim transcripts (interviews) translated transcripts (field text) into N-VIVO, a qualitative software program for data management and analysis. We will use the analytic framework outlined by Crabtree and Miller (1999) who suggest five phases of data interpretation: The five phases are: 1) describing; 2) organizing, 3) connecting, 4) corroborating/legitimating; and 5) representing the account.

**Potential Impact/Lessons Learned:** In the case of success to find the link between quality improvement and CanMEDs competencies, we can include the QI course, with the CanMEDs competencies being the actual outcome of the course.

**References:**

1) Hefler J. and and Ramnanan C.J.: Can CanMEDS competencies be developed in medical school anatomy laboratories? A literature review. Int J Med Educ. 2017; 8: 231–238.

2) Qualitative research from start to finish: Robert K. Yen. © 2011 The Guilford Press A Division of Guilford Publications, Inc. 72 Spring Street, New York, NY 10012.

**It Starts with Me: Enhancing Resident Feedback in a Family Medicine Residency Program**

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**Idea/Problem Statement:** Helping family medicine residents utilize feedback by changing how I deliver feedback during clinical interaction(s)

**Need/Rationale:** There is a shift in medical education from unidirectional feedback given from teacher to learner to a coaching model where both work together to achieve educational goal(s)(1). An identified barrier to residents valuing or effectively receiving feedback is the culture in which feedback is rendered (1,2). A proposed solution to overcoming this barrier is for faculty to work on an educational alliance where the learner's perspective informs the quality of the relationship (3). This includes making the provision of feedback a normal part of the program, creating longitudinal relationships and working together to support the learner (1,2,3). Based on the learning principles that learners' motivation directs retention, and that their development interacts with the climate of the program, focus will be directed on changing the faculty member's provision of feedback to create a safe environment for residents to receive and utilize feedback for professional growth. Feedback will be structured to include growth promoting words with the goal of affirming desired observed resident behaviors.

**Methods:** This intervention will take place over one year on the 21 residents in a single community-based family medicine residency program. In this program, the setting with the most opportunity for longitudinal faculty interaction with residents is while precepting the resident outpatient continuity clinic. Intervention will be feedback given by a single full-time core faculty member via email after each outpatient clinical half-day precepting session with the resident(s). The goal will be to give this feedback within 24 hours after the session. The feedback given to resident(s) will be specific to the six ACGME core competencies and will be formulated using a model focusing on three types of feedback: appreciation, affirmation and coaching. The learner outcome objectives for this intervention include that learners will be better able to: 1) acknowledge receipt of ongoing feedback; 2) articulate their own strengths in caring for patients in the outpatient setting; 3) demonstrate improving competence in 80% of the ACGME milestones relevant to the outpatient setting.

**Evaluation Plan/Results:** The evaluation will include tracking, assessment of resident learning and assessment of resident reaction, views and self-reported behavior change. A faculty feedback portfolio will be used for tracking and will include: 1) feedback emails sent to residents; 2) resident email responses to the feedback; 3) unsolicited feedback from residents to the faculty member. The semi-annual ACGME milestones assessment will be used to assess resident learning as reflected in ratings on the outpatient relevant milestones. Resident reaction, views on the feedback and self-reported change will be gathered using a survey administered at 6 months and 1 year after implementation to gain information about 1) resident perceptions of the feedback provided by the faculty member; 2) how residents report using the feedback in their own development as family physicians.

**Potential Impact/Lessons Learned:** It is our hope that this intervention will show that changing the way one faculty member delivers feedback can impact resident perceptions and utilization of feedback. This individual improvement model could then be used in any specialty to enhance the impact of feedback

**References:**

1) Watling, C. J., & Ginsburg, S. (2018). Assessment, feedback and the alchemy of learning. Medical Education. doi:10.1111/medu.13645. epub ahead of print.
2) Ramani, S., Könings, K. D., Mann, K. V., Pisarski, E. E., & Vleuten, C. P. (2018). About Politeness, Face, and Feedback. Academic Medicine,93(9), 1348-1358. doi:10.1097/acm.0000000000002193
3) Telio, S., Ajjawi, R., & Regehr, G. (2015). The "Educational Alliance" as a Framework for Reconceptualizing Feedback in Medical Education. Academic Medicine,90(5), 609-614. doi:10.1097/acm.0000000000000560

**Piloting a Framework to Adapt Narrative Feedback Prompts**

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**Idea/Problem Statement:** To improve the quality of feedback, we propose adapting the narrative prompts to increase the quality and present a pilot application of the framework

**Need/Rationale:** Feedback about clinical performance is critical to guide resident development into competent physicians. Medical students rely on self-reflection and receiving feedback from their preceptors to learn in the clinical environment, but most trainees feel that the quantity and quality of feedback they receive about their clinical performance is inadequate. Although characteristics of effective feedback is well documented, research on medical education has focused on improving the quality of feedback through faculty development tools, strategies for providing effective feedback, and assessment methods that integrate feedback. Currently, narrative prompts are often unstructured and generic; preceptors complete a free-text prompt they deem relevant to the student. To improve the overall quality of feedback, our study will investigate whether task-specificity and directness of feedback can be improved through adapting the narrative prompt based on student's performance in the assessment.

**Methods:** Through adopting the principles of adaptive testing and automatic item generation, the purpose of our study is to develop and demonstrate an Adaptive Narrative Feedback Prompt (ANFP), where the feedback prompt presented to preceptors will be customized based on student performance. The ANFP framework consists of three components: 1) an item-level blueprint of relevant skills scored in the clinical assessment; 2) an adaptive algorithm that determines what information should be prompted about the student according to their performance; 3) a model-based text generator that adapts the feedback prompt based on the requirements of the adaptive algorithm. The adaptive algorithm converts student performance in each domain collected from rating scale responses into scoring scales in various time period. Then, the algorithm evaluates each performance pattern and determines priority for which domain and what type of deficits and praises the evaluator should address. Finally, a text-model that contains all permutation on areas of feedback is then used to generate each customized prompt. To demonstrate the ANFP framework, an application of the method was piloted by 160 medical students throughout their clinical rotations in one academic year. Descriptive analysis was devised to compare results before using ANFP.

**Evaluation Plan/Results:** A total of 8,342 formative comments and 3,964 comments were provided by preceptors using ANFP. This is compared to a total of 674 formative comments and 1,265 summative comments provided in the previous years (an increase of 563%). On average, each student received 75 comments across one year compared to 12 in the previous years. Length of the comments were reduced (an average of 151 characters) compared to previous year (465 characters). A selection of the differences between prompts and other analytic techniques on the differences of the comments will be presented. In sum, our initial results have suggested that ANFP was effective in increasing the number of comments, in corresponding categories, provided to students for feedback.

**Potential Impact/Lessons Learned:** In line with the literature for encouraging feedback in the development of learner feedback systems, development of student driven feedback approaches, and faculty development approaches to improve feedback, our project builds on improving feedback prompt as an approach to improve student feedback.

**References:**

1) Archer J.(2010) State of the science in health professional education: effective feedback. Medical Education. 44(1):101-108.
2) Branch, W. and Paranjape, A. (2002). Feedback and Reflection: teaching methods for clinical settings. Academic Medicine, 77(12), 1185-1188.
3) Bing-You, R., Trowbridge R.(2009). Why Medical Educators May Be Failing at Feedback. JAMA. 302(12), 1330-1331.

**Red Eye Rounds – Knowledge in the Cloak of Darkness (Innovation with Outcome Data)**

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**Idea/Problem Statement:** Residents at Denver Health have repeatedly stated that they would like some type of teaching or interaction with the hospitalist attendings at night.

**Need/Rationale:** Night time education can notoriously be challenging for two reasons: 1) variable workflows for both the residents and attending hospitalists; 2) no formal rounding or teaching opportunities with the residents. The goal of Red Eye Rounds is to create a nighttime education curriculum that is sustainable, efficient to implement and increases communication between faculty and residents during the night shift. With the development of the Red Eye Rounds curriculum, we aim to capture lost resident-attending communication and education during the night shift. The challenge, however, is to create a type of nighttime curriculum that adds the desired value, but fits logistically with both parties' workflow.

**Methods:** Red Eye Rounds occur at midnight every night and last approximately 15-20 minutes. This curriculum offers a structured and predictable way to troubleshoot complex medical and patient flow issues encountered at night. Residents also receive teaching pearls from an attending and get to discuss complicated patient cases. To help our hospitalist attendings facilitate Red Eye Rounds, we created an easy-to-use curriculum of teaching resources. This consists of: 1) our own question bank using MKSAP and other resources; 2) a collection of key practice-changing evidence-based articles; 3) a collection of pearls about the common cross cover issues encountered overnight. The hospitalist attendings can quickly access and utilize these resources at night without having to spend too much time preparing to teach during an already busy shift. The development of Red Eye Rounds took 6 months, from concept to launch. During the initial 2 months, we gathered feedback from the residents about their perception of nighttime teaching using a survey questionnaire. The questionnaire allowed us to identify a serious need for improved resident-hospitalist communication at night. In the following two months, we developed the RER curriculum. Then spent another 2 months pilot testing the Red Eye Rounds. It was officially integrated into hospitalist and resident workflow in August 2017.

**Evaluation Plan/Results:** Thus far, we have found that meeting with the residents at midnight improves resident-attending communication, identifies potentially sick or complicated patients earlier, alerts hospitalist attendings to when resident teams may approach caps, and makes the night shift experience more predictable for both parties. Red Eye Rounds has received overwhelmingly positive feedback from the residents and the hospitalist group. Some input from our hospitalist colleagues includes: "I'm finishing up nights tonight."; "The Red Eye Rounds is REALLY a good thing."; "It's changing the dynamic between us and the residents literally overnight!"; "Almost every night they are calling us asking a question about management or something else."; "Such a good thing!!!"; "It's even making us look at system stuff. Such as last night a question about co-signature of a DNR came up, and the resident asked why we have a paper DNR form when no other hospital in the system does that. The EPIC order is enough at the University. I'm emailing folks now to ask that very question. Why do we do that???"; "When we've called the residents every night regarding admissions, they seem interested and engaged…. seem excited to have a good case. There also seems to be more of a sense that they should feel free to call us anytime they have questions or concerns. For example, they had been unaware they could call us if they felt a patient didn't need to be admitted."

**Potential Impact/Lessons Learned:** Attendance at Red Eye Rounds, ensuring that rounds happen consistently, tracking attendance; allowing for a 5min check in or phone call check-in on busy nights. Extending to University Hospital & VA Hospital this academic year 19/20. Utility of branding.

**References:**

1) Hanson JT, Pierce RG, Dhaliwal G. The new education frontier: clinical teaching at night. Acad Med. 2014 Feb; 89(2):215-18

2) Richards JB, Wilcox SR, Roberts DH, Schwartzstein RM. Twelve Tips for overnight teaching. Med Teach. 2014 Mar; 36(3): 196-200.
3) Raimo J, LaVine S, Chaudry S. An innovative approach to night-shift education. Med Educ. 2016 May; 50(5): 588

**Soften the Learning Curve: Reimagining EMR Interaction for the Betterment of Medical Education**

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**Idea/Problem Statement:** Curriculum-based medical scribing to increase preclinical medical student confidence in EMR documentation and medical decision-making.

**Need/Rationale:** At Loyola Stritch School of Medicine (SSOM), and at many medical schools nationwide, pre-clinical medical student patient encounters are largely observational and do not prepare students for the rigor of clinical rotations, both surrounding electronic medical record (EMR) documentation and self-confidence in medical decision-making. This program proposes training M2 students as medical scribes who will participate in real-time EMR documentation of clinical encounters on behalf of a supervising physician. The student's note can subsequently be reviewed with the physician for purposes of instruction, highlighting vital aspects of the patient visit while providing close supervision and training in the technical and medicolegal aspects of EMR documentation. This allows students to actively participate in clinical encounters prior to clinical duties M3 and M4 year. In addition to potential student benefits of this intervention, scribing has been identified as a mechanism to improve patient-clinician interactions, bolster clinician satisfaction, and increase both the number of patients seen as well as time spent with patients. This program is supported by Loyola Stritch School of Medicine and the Loyola University Health System. It received the $1,000 2017 Curricular Innovation and Technology in Education (CITE) Award from Loyola and, most recently, a $10,000 2018 AMA Accelerating Change in Medical Education Innovation Grant.

**Methods:** Participants will be placed into one of two cohorts: a control group in which students will shadow their resident/attending physician after completing an initial history and physical exam, and an experimental group where students will serve as a "scribe" for their resident/attending after completing the history and physical. Throughout this project, we will utilize specific surveys to capture key data from various stakeholders including our student participants, resident physicians, attending physicians, and the patients themselves. Consent will be collected from physicians, participants, and patients prior survey distributions. Surveys will capture information related to medical students' self confidence in clinical skills and EMR documentation as well as interest in pursuit of primary care residency pre/post intervention, physician assessment on medical students' clinical performance, self-reported documentation time spent per patient, and finally patient satisfaction. The research team has developed these surveys by drawing from existing, validated surveys and survey scales where applicable, acknowledging that medical students have not ever been studied as scribes.

**Evaluation Plan/Results:** A generalized linear mixed effects model will investigate the spread in confidence ratings and documentation time between control and experimental groups. In these models, a multinomial distribution will be specified for each confidence construct. A cumulative logit link will estimate the odds ratio. Weighted kappa analysis will estimate the agreement between preceptors' ratings on students' clinical confidence and the student's own perception among both experimental and control groups. A kappa value exceeding 0.8 will be considered acceptable agreement between preceptor and student confidence ratings. Finally, an ordinal logistic regression model will compare the distribution of patient satisfaction between the two cohorts. In this model, the proportional odds assumption will be assessed using a score statistic. If the assumption is violated, a non-parametric Wilcoxon rank-sum test will compare the distribution of patient satisfaction between the cohorts.

**Potential Impact/Lessons Learned:** We believe this represents a viable strategy for EMR-based clinical documentation training for pre-clinical medical students in an effort to improve documentation and comprehensive clinical skills. Moreover, CMS recently approved teaching physician use of student documentation for billable services.

**References:**


1) Rouf E, Chumley HS, Dobbie AE. Electronic health records in outpatient clinics: perspectives of third year medical students. BMC Med Educ. 2008;8:13.
2) Hess JJ, Wallenstein J, Ackerman JD, et al. Scribe Impacts on Provider Experience, Operations, and Teaching in an Academic Emergency Practice. West J Emerg Med. 2015; 16(5); 602-610.
3) E/M Service Documentation Provided by Students (Manual Update). Department of Health & Human Services, Centers for Medicare & Medicaid Services. CMS Manual System. 2 Feb 2018.

**A Novel E-Learning Curriculum on Safe Discharge Transitions in a Pediatric Clerkship: A Pilot Study**

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*Children's Hospital Los Angeles/Keck School of Medicine of USC*

**Idea/Problem Statement:** This study utilizes needs assessment data to create a novel pediatric clerkship curriculum with emphasis on discharge counseling and medication safety.

**Need/Rationale:** Patient-tailored transitions of care (TOC) from hospital to home are associated with improved health outcomes in adults: reduced hospital readmission rates, fewer medication errors, and improved patient satisfaction (1). Children tend to have care coordination needs that differ from those of adults. However, there is little research in the pediatric literature on this topic. There are no curricula for medical students in the pediatric setting that focus on safe transitions, medication safety and the role of discharge education (2). With the “millennial generation” favoring social media platforms and other technology, educators must consider using interactive teaching strategies that are more time-efficient and readily available than traditional approaches (3). We will compare knowledge and self-efficacy outcomes from a technology-based curriculum to a traditional format. I hypothesize that a curriculum of either modality will benefit the participants, but the technology-based modality will enhance learning and provide additional benefits in terms of logistics, reproducibility, and student and instructor time commitment. We will also assess for change in behavior using a direct observation tool while conducting discharge counseling. Lastly, we will use a “discharge checklist” assessment tool to evaluate their exposure to discharge-related proficiencies. This project idea was awarded an institutional $10,000 grant for innovative research in medical education and under IRB review.

**Methods:** This is a prospective pilot and feasibility study to evaluate a TOC curriculum focused on a patient and family-centered approach to hospital discharge. We plan to recruit 135 third-year medical students over 6 months during five 6-week clerkship blocks, with 27 students each. A power analysis showed for an 80% chance of detecting a moderate effect size (f=.25), a total sample of 128 would be required. At week 1 of each clerkship, all students will attend a workshop-style format consisting of a brief overview on the topic of TOC/safe transitions (40 minutes). Those who agree to participate will be consented, and asked to complete a brief, 10-question knowledge/attitude pre-test. Study participants will be randomized within each block (to minimize maturation bias) into a control group (no online modules; discharge checklist) and an intervention group (two 20-minute online modules using articulate storyline interactive e-learning software; discharge checklist). A post-test will be given at the end of inpatient portion of their rotation (week 3). Direct observation of a student conducting discharge education on a hospitalized patient will be done by trained hospitalists using a brief, validated assessment tool (only with participants at CHLA due to logistics). Weekly emails will be sent to remind the intervention group to complete modules by the end of their inpatient experience. Direct observations will occur during the last week of the inpatient block.

**Evaluation Plan/Results:** The primary outcome is to assess for change in knowledge in all subjects who agreed to participate in the study. Our secondary outcomes include: 1) assessing for change in comfort/self-efficacy; 2) technology-based modalities will be a more favored, viable alternative to conventional strategies and; 3) assessing for change in behavior via direct observation. We hope to also show correlations in knowledge with completion of a discharge checklist which includes elements that must be checked off after the task is complete. Outcomes will be measured by a pre- and post-test knowledge and self-efficacy survey and a direct observation assessment tool. We will use analysis of variance (ANOVA) to examine differences in improvement over time by experimental group. A post-test question will ask about feasibility of overall curriculum and markers of curriculum implementation will be tracked which includes number of participants who accessed the modules and duration of time spent in each e-module

**Potential Impact/Lessons Learned:** This curriculum will offer many benefits to student learning and may show a feasible way to implement content using interactive teaching strategies that are more time-

efficient and readily available than traditional approaches. Next steps include studying efficacy and sharing at other institutions.

**References:**


1) Boysen, D. G. (2010). Changing the Culture In Medical Education To Teach Patient Safety. Health Affairs, 29(9), 1600-1604.
2) Eskildsen, M. A. (2012). Use of a Virtual Classroom in Training Fourth-Year Medical Students on Care Transitions. Journal of Hospital Medicine, 7(1), 14-21.
3) Roberts, D. (2012). Twelve tips for facilitating Millennials' learning. Medical Teacher, 274-278.

**Building Learners' Communication Skills through Early Intervention Using Standardized Patients**

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**Idea/Problem Statement:** Paired teaching with standardized patients, combined with the 21st century mindset to help struggling students enhance patient-centered communication.

**Need/Rationale:** All health professions' students must develop the skills needed to conduct patient centered interviews: 1) Despite this being a core entrustable professional activity for medical students, many get limited teaching and minimal individual feedback on this critical skill; 2) Increasingly, program directors in graduate medical education (GME) have noted significant variability in medical school graduates' readiness to perform routine clinical activities; 3) Moreover, at its July 2017 meeting, the United States Medical Licensing Examination (USMLE) Management Committee voted to increase the required minimum passing level for all three Step 2 CS (Clinical Skills) subcomponents: Communication and Interpersonal Skills (CIS), Spoken English Proficiency (SEP), and Integrated Clinical Encounter (ICE). Our institution has seen an increase in failure of Step 2 CS after the increased minimum passing level, compared to previous years. To address this challenge, we are proposing to incorporate elements of the 21st Century mindset (growth mindset and self-compassion) with one-to-one coaching using standardized patients (Dweck, 2006 and Neff, 2011).

**Methods:** This intervention will focus on third-year medical students (n~25) who are identified by Objective Structure Clinical Examinations (OSCE) score, as needing early assistance in developing patient centered communications. All clerkship OSCE scores contain a Physician-Patient Interaction (PPI) section that focuses on patient centered interviewing. Learners who score below 60% on the PPI section will be offered coaching. The intervention for each student will include: 1) the opportunity to take the Mindset self-assessment tool and the Self-Compassion Scale (free online tools); 2) coaching by a faculty member on their mindset/self-compassion; 3) one-to-one session with a standardized patient (two separate cases) with direct faculty observation; 4) feedback specific to the behaviors utilized both in our OSCEs and the Step 2 CS. Learners may request a second one-to-one session. After successful participation, learners will be better able to conduct a patient centered interview (e.g., open-ended questions, body language, listening, avoiding medical jargon, and responding to patient's verbal and nonverbal cues and emotions). It is our goals to help students improve their overall Year III OCSE performance through this early intervention process.

**Evaluation Plan/Results:** The evaluation will include tracking of feasibility and participation. We will track: 1) faculty and standardized patient hours committed to the intervention; 2) the percent of eligible students to accept coaching, percent that complete the online instruments, and percent that select one versus two coaching sessions. Effectiveness of the intervention will also be examined using student reaction data as well as performance data. Reaction to the intervention by learners will be gathered through a post-participation survey examining quality of the coaching, usefulness of the 21st century mindset tools, and confidence in patient centered communication skills. Since the PPI section is standardized among all clerkship OSCSs, we can track student performance throughout the third year as part of assessing the effectiveness of intervention. Ultimately, student performance can be tracked using USMLE Step 2CS exam results.

**Potential Impact/Lessons Learned:** If our model is effective and feasible, it could be used by programs in any health profession to help them with struggling learners.

**References:**

1) Association of American Medical Colleges (AAMC). Core entrustable professional activities for entering residency: curriculum developers' guide. AAMC iCollaborative, Washington, DC. 2014.
2) Schopper, H., Rosenbaum, M., Axelson, R. (2016). 'I wish someone watched me interview:' medical student insight into observation and feedback as a method for teaching communication skills during the clinical years. BMC Medical Education, 16:286

3) Young JQ, Ranji SR, Wachter RM, Lee CM, Niehaus B, Auerbach AD. (2011). "July effect": impact of the academic year-end changeover on patient outcomes: a systematic review. Ann Intern Med. 2011;155 Suppl 5.

**Impact of Learning Theory and Learning Style Awareness for Students in a Medical School Curriculum**

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*Touro College of Osteopathic Medicine*

**Idea/Problem Statement:** A presentation designed to educate students about learning theory and styles and create individualized approaches to the medical school curriculum.

**Need/Rationale:** Many students may not be aware of their individual learning methods at the start of medical school and thus may not study as effectively until much later. It may be of value for students in a medical school-based curriculum program to be aware of various learning theories and identify effective learning strategies before coursework begins. This study aims to educate students about learning theory and styles and create individualized approaches to the medical school curriculum.

**Methods:** Participants were given a presentation outlining the basic characteristics of different learning styles and corresponding study/learning habits that are most effective. Participants were administered the modality (learning channel preference) questionnaire by O'Brien (1985) to determine their personal learning style. A pre-presentation and a post-presentation survey gathered information on the different types of learning styles, and awareness of personal learning styles.

**Evaluation Plan/Results:** Overall, 94.12% (n=256) were interested in learning study skills for medical school and an overwhelming majority at 92.65% (n=252) were interested in a personalized study approach catered to their learning style. Participants were surveyed on which of three learning styles (visual, auditory, and kinesthetic) applied the most to them. Results were grouped to track trends among students. Future studies can analyze success in the DO program when students utilize the correct learning style from the start.

**Potential Impact/Lessons Learned:** Students aware of the theories of cognition can create a better approach to their learning starting in their first semester of undergraduate medical education to build a stronger foundation, develop a more rehearsed working memory, and eventually incorporate more knowledge into long-term memory.

**References:**

1) Vaughn, L., & Baker, R. (2001). Teaching in the medical setting: Balancing teaching styles, learning styles and teaching methods. Medical Teacher, 23(6), 610-612.
2) Samarakoon, L., Fernando, T., Rodrigo, C., & Rajapakse, S. (2013). Learning styles and approaches to learning among medical undergraduates and postgraduates. BMC medical education, 13(1), 42.
3) Lujan, H. L., & DiCarlo, S. E. (2006). First-year medical students prefer multiple learning styles. Advances in physiology education, 30(1), 13-16.

**Perceived Impact of Novel Board Resources on COMLEX-USA Level 1 Pathology Performance**

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**Idea/Problem Statement:** A retrospective analysis of pathology board prep resources designed to improve student preparation for COMLEX Level 1.

**Need/Rationale:** Pathology remains one of the major components of medical school foundational biomedical science curriculum. Due to advances in educational technology, there has been a recent surge of resources available to medical students both to supplement what is taught in the classroom and to provide high-yield review for licensure examinations.

**Methods:** An anonymous questionnaire was distributed to Touro College of Osteopathic Medicine - New York (Harlem) students who recently took COMLEX Level 1 to gather information on demographics and responses towards different pathology board preparatory resources. All participants were given access to the survey via email. The survey was distributed and completed by participants electronically using the online service SurveyMonkey. Participants were provided with a brief explanation prior to the survey, via SurveyMonkey, with the option to decline. Subject responses were recorded on a Likert scale ranging from 1 to 5, with 1 corresponding to "strongly disagree" and 5 corresponding to "strongly agree".

**Evaluation Plan/Results:** Participants were surveyed on which resource was crucial in preparation for COMLEX Level 1 Pathology, their most preferred preparatory resource for the exam, whether or not the school's curriculum was sufficient for the exam, and an open comment section about additional insight regarding their preferred pathology resources. Results were grouped based on class year and age at time of COMLEX level 1 preparation (ranged: 20-29, 30-39, 40-49, 50+ years old).

**Potential Impact/Lessons Learned:** Identifying characteristics of recently released resources that appeal to the current generation of medical students can help medical educators improve their curriculum and become more effective in preparing their students for COMLEX Level 1.

**References:**

1) Johnson, J., Jordan, E., Burton, W., & Silbiger, S. (2016). Are questions the answer? The effect of popular study resources on USMLE Step 1 performance.
2) Kumar, K., Indurkhya, A., & Nguyen, H. (2001). Curricular trends in instruction of pathology: a nationwide longitudinal study from 1993 to present. Human pathology, 32(11), 1147-1153.
3) Kumar, K., Nguyen, H., & Indurkhya, A. (2003). Relationship between pathology curricular approaches and performance in the United States medical licensing examination (USMLE), step 1: a national cross-sectional study. Human pathology, 34(5), 417-422.

**An Educational Tool for Acute Pain Management in the ED and its Effect on Opioid Utilization**

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**Idea/Problem Statement:** Study evaluating an educational video on opioid-reducing pain management strategies in the ED and its impact on resident opioid use and prescription.

**Need/Rationale:** Pain is the most common presenting complaint to the Emergency Department (ED) so ED providers should be experts in pain management. However, providers frequently fall short in this category and often attempts at pain control are inadequate or delayed. Even in instances where pain is adequately treated, it may be done in a manner which can lead to detrimental downstream affects including the potential for dependence. A potential solution to the problem of improper pain management in the ED is resident education. There have previously been efforts to implement some educational component of pain management that have resulted in improved analgesia and patient satisfaction (1). One study from the surgical literature also demonstrated decreased opioid prescriptions after an educational intervention about pain control. There is a plethora of research and expert consensus to guide the pharmacologic management of pain in a number of common painful syndromes without the use of opioids (2). Additionally, the American College of Emergency Physicians has released a policy statement on pain management in the ED which urges providers to reduce the amount of prescribed opioids from the ED in light of evidence that adequate analgesia can be attained with less risky medications (3). Despite this evidence and consensus, there still seems to be variability in the pharmacologic treatment of acute pain.

**Methods:** This will be a prospective before-and-after study evaluating the pain management practices and prescriptive patterns of individual residents. We will examine these behaviors in the two weeks before and after a 30-minute online lecture teaching a general approach to opioid sparing pain management as well as the recommended analgesic approaches to headache, back pain, and extremity pain. To create this lecture, we have extensively searched the literature for consensus opinion and high-quality evidence regarding analgesia for the mentioned complaints and summarized the key points in a short online video. We have also drawn from ACEP policy statements and expert opinion around pain control in the ED. Our instruction here stresses use of non-opioids as a first line analgesic when appropriate, early treatment of a patient's pain, and the importance of a thoughtful analgesic approach to each patient.

**Evaluation Plan/Results:** The statistical analysis will aim to detect differences in oral morphine milligram equivalents (MME) per patient given in the ED and prescribed from the ED by each individual resident before and after the educational intervention. Secondarily, we aim to breakdown the MME by complaint as our educational intervention will discuss data specific to the listed complaints above. Additionally, we will evaluate pain scores and time to analgesia to measure whether the intervention has led to changes in patient outcomes. To do this, we will draw this data for each individual resident and patient from the electronic medical record. The statistical analysis would involve a paired t-test to compare MME before and after the intervention. We would do the same analysis by complaint for our secondary outcomes. Additionally, we will compare time to analgesia and pain control (as measured by the verbal pain scale) in the pre- and post-intervention periods.

**Potential Impact/Lessons Learned:** Results will inform the design of instructional methods that may lead to a reduction in use and prescription of unnecessary opioids as well as more effective analgesia in the ED. Given the opioid epidemic, any decrease in inappropriate opioid use may have a dramatic impact on patient outcomes.

**References:**

1) Jones JB. Assessment of pain management skills in emergency medicine residents: the role of a pain education program. J Emerg Med. 1999; 17:349–54.

2) Orr, Serena L., et al. “Management of Adults With Acute Migraine in the Emergency Department: The American Headache Society Evidence Assessment of Parenteral Pharmacotherapies.” Headache: The Journal of Head and Face Pain, vol. 56, no. 6, 2016, pp. 911–94
3) “Optimizing the Treatment of Acute Pain in the Emergency Department.” Annals of Emergency Medicine, vol. 70, no. 3, 2017, pp. 446–448., doi:10.1016/j.annemergmed.2017.06.043.

**Rethinking Clinical Teaching: An Example of Using Lesson Plans on the Wards**

Kahn, Michael
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**Idea/Problem Statement:** This presentation provides medical teachers several lesson plans they can use to teach clinical reasoning as a discrete skill on the wards.

**Need/Rationale:** What makes a doctor special? With information so readily available at everyone's fingertips, I believe that knowledge is no longer a physician's greatest tool. Medical education has continued to place a premium on knowledge-acquisition using the same algorithmic didactic styles, but we have still not operationalized the teaching of critical thinking as a discrete skill. Using the popular RIME framework, we must develop methods to help medical students move from Reporter to Interpreter and beyond. This session aims to do just that. As a former classroom teacher, I have developed several quick teaching modules to help build critical thinking as a discrete skill on the wards. In this session, geared towards residents and attendings who want to build their teaching skills, attendees will walk walk away with a few simple lesson plans that can be used with medical students and early-career residents.

**Methods:** Keep it Simple: This teaching tool helps learners transition from reporters to interpreters, as they begin to distinguish pertinent history from extra information that points to an example of a zebra. Could this patient have bird-watcher’s lung? Maybe, but it’s more likely to be pneumonia. Learning Objectives: Distinguish between pertinent history and low yield information; Critically evaluate the patient’s history for important details for a clinical presentation. Differentiating Differential Diagnoses: This teaching tool helps learners with basic history-taking and physical exam skills to modify a differential diagnosis for a chief complaint as they progress through their exam. I aim to help learners direct their questions and physical exam maneuvers based upon their differential diagnosis. Learning Objectives create a differential diagnosis based on epidemiology, history, and physical exam. Evaluate a differential diagnosis based on each phase of the exam. Learner-Led Learning Objectives: This is a technique that will allow learners to make complex topics more accessible by controlling the organization, depth, and speed of learning. They not only access existing knowledge, but also create the framework under which the topic will be learned to best understand the material and provide optimal scaffolding. Learning Objectives develop the ability to create their own scaffolding for learning complex concepts to help self-directed learning of complex topics, and establish level-appropriate goals to optimize learning.

**Evaluation Plan/Results:** Attendees will walk away with 3 lesson plan ideas that can be customized to fit their areas of specialty and learners' needs. Learning Objectives employ systematic teaching modules for medical students; Foster critical thinking in learners with a reproducible approach; and Appreciate the efficacy of formalized lesson plans for medical students.

**Potential Impact/Lessons Learned:** I hope this presentation builds a culture of creating lesson plans to teach discrete skills in medical education. By using systematic lesson plans for clinical thinking, we can better prepare students for residency, residents for practice, & teachers to help learners reach those goals.

**References:**

**Application of 3D Printing Technology in the Development of New Training Techniques**

Gomez, Erick
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**Idea/Problem Statement:** Use 3D printers to design and produce models that accurately resemble pathologic conditions to carry out realistic training on treatment modalities.

**Need/Rationale:** Studies have shown that even though the digital models (web-based) are gaining popularity to teach different techniques and interventions for health care, putting one's hand on an object helps to achieve better performance (Pawiluna & Drake, 2013). There is clearly a lack of realistic models for realistic training in dentistry, as the available standardized anatomical models do not provide the characteristics required for specific training needs. The use of customized training models will provide the students and faculties the opportunity to learn skills in a realistic environment, that otherwise could be only learned through clinical experience, where the educational experience is limited to the incidence of specific cases. With more realistic training the students will be better prepared to successfully manage any conditions he/she may encounter in their practice.

**Methods:** The design of the models will be carried out by adding a new module to the software used in the CADCAM center at Herman Ostrow School of Dentistry of USC. Models will print and process using the 3D printers of the CADCAM center. The design and printing of the models will be completed from January 2019 through July 2019. The customized training modules implementing the use 3D printed models will take place from July 2019 to November 2019 at the Orofacial pain and oral Medicine center at Herman Ostrow School of Dentistry of USC. Five training interventions have been identified: 1) temporal tendon injection; 2) lateral pterygoid identification; 3) location and removal of salivary gland stones; 4) removal of bone sequestrum from the mandible; and 5) intraoral splint delivery. A session with students and professionals will be conducted prior to the first training module to validate the usefulness of the models and to do any required adjustments.

**Evaluation Plan/Results:** Since this project is in the “idea” stage it has not been tested yet; however, a comparison of the level of satisfaction, before and after the educational experience (using the 3D printed models) can be carried out using a satisfaction survey. Also, we plan to evaluate the performance of the participants with a rubric with performance criteria.

**Potential Impact/Lessons Learned:** With the use of customized training kits, we are assuring to provide more realistic educational experience for the students and the professional who wants to obtain additional training.

**References:**

1) Pawlina, W., & Drake, R. (2013). Anatomical models: don’t banish them from the anatomy laboratory yet. Anatomical sciences education, 6(4), 209–210. doi:10.1002/ase.1380

**3D Printing in Medical Education: A Novel Approach**

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**Idea/Problem Statement:** Incorporate 3D printing into clinical curriculum thereby increasing accessibility to novel simulations and familiarity in rarely seen procedures.

**Need/Rationale:** The integration of 3D printing into medical education mirrors the expansion of technology into healthcare. By enabling students and residents to utilize means to create novel simulation models, we hope to unlock untapped means of tactile learning. 3D printing allows us to create models of any pathology present in the human body - in doing so, we are creating the opportunity for students to be able to practice procedures previously not accessible. Not only have we already created multiple simulation models that will be on display at this conference, but we hope to organize a community of interested physicians and educators across the world to create an open dialogue about other potential uses that we foresee 3D printing having in positively impacting healthcare and medical education. Ultimately, we hope to create a forum that allows for communication across medical specialty and healthcare provider field to ensure that we are created tools aimed at the betterment of patient outcomes.

**Methods:** After creating novel medical simulation models including an emergency department thoracotomy; lumbar puncture; chest tube; subclavian line; burr hole; amongst others, we will be holding dedicated conference days in which resident physicians and medical students will practice these procedures. By utilizing the 3D printed materials, we are able to create these models for a fraction of the cost as otherwise available models (example: typical thoracotomy simulation mannequin cost $15,000; our 3D printed simulation mannequin $60), allowing clinicians to perform an increased number of repetitions on each model. We are hoping these data sets can be further extrapolated into finding a ‘number needed to be competent’ for young physicians performing rarely seen procedures. We will then be utilizing several objective measurement surveys including anxiety, stress, and competency in performing these procedures to determine if the increased exposure to said procedures and clinical scenarios helps decrease anxiety and increase competence. Over time, we would like to track this data longitudinally to correlate increased exposure and practice to clinical outcomes.

**Evaluation Plan/Results:** We will be evaluating medical students and resident physicians by using a series of surveys assessing a multitude of variables including confidence and anxiety. Ultimately, we will be implementing these 3D printing models into the curriculum of clinicians and tracking procedure logs throughout their training. In doing so we will be able to assess number of attempts it takes to successfully perform a procedure, stress and anxiety, and eventually how this translates to overall increases in healthcare quality. As of now, the single largest area it has been seen in published research has been surgical planning; this leaves an untapped potential for the expansion of its utility in various fields including patient and medical education. In focusing on the latter, we hope to increase not only the frequency in which clinicians are able to see and practice certain procedures, but vastly expand the catalogue of currently available pathologies.

**Potential Impact/Lessons Learned:** 3D printing has just begun being integrated into medicine- we aim to harness its potential and combine it with our creative drive to further medical education. These simulations are the first step in utilizing a new form of technology to ultimately develop more competent and experienced clinicians.

**References:**

**Cardiogenesis, 3D Printed Substrates, and Heart Valve Repair to Enhance Medical Student Education**

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*Oxnard College and Central Coast Biotech Institute*

**Idea/Problem Statement:** Medical school students and advanced undergraduates gain knowledge and skills in heart valve surgery using 3D printed tissues and cardiac stem cells.

**Need/Rationale:** With the growing epidemic of cardiovascular disease, there has been an increased interest for research in age-related loss of cardiomyocytes. Over the past five years, our lab has addressed this concern and simultaneously produced a powerful teaching model, CTE3D, which exposes students to graduate-level research, regenerative medicine, and practical surgical skills. Our project aims to model a clinical scenario wherein cardiac tissue derived from the patient is grown in laboratory tissue culture, modified genetically, and returned to the patient as a therapeutic living surgical suture. This model promotes hypothesis-based inquiry, employing the process of scientific modeling, and the use of advanced laboratory techniques that many medical students seek. With the rapidly accumulating research data supporting cell therapies, there has been increasing consumer attention to stem cell treatments that graduates of this program will have knowledge and experience in.

**Methods:** Our teaching curriculum, CTE3D: A Cardiac Tissue Engineering on 3D CAD Printed Substrates, spans 4 modules: Module 1: Personalized medicine, tissue regeneration, and advanced cell culture sterile techniques are discussed. P19CL6 stem cells are used to grow myocardial tissue on fibrin matrices. Cells are monitored using inverted microscopes, digital cameras, HD monitors and imaging software. Module 2: Instruction in sterile laboratory techniques is initiated by peer mentors. Cell-signaling pathways (wnt/β-catenin) are discussed and basic controls for cardiac differentiation are established using dimethyl sulfoxide (DMSO); at 14 days, contractile behavior (“beating”) predictably appears. Module 3: Trends in manipulating electrically responsive tissues, novel biomaterials and cell delivery form the basis of a literature search. Students are given access to CAD software and a 3D printer, various suture materials, fibrin components and differentiation factors and are encouraged to engineer novel ways to enhance contractile behavior. Module 4: Students design projects incorporating techniques and cell materials learned and utilized over the course. One project is elected by lab participants and principal investigator to be carried out. The most recent summer 2018 project elected to be carried out built upon previous summer innovations by utilizing “seeded” sutures to repair pig heart tissue, mimicking difficulties encountered during heart valve surgery.

**Evaluation Plan/Results:** CTE3D will be assessed both quantitatively and qualitatively. First, students will be surveyed prior to entering the educational course (CTE3D) and again at the end of the module or semester on the content, level of difficulty, and their perceived level of mastery of the concepts. Second, faculty members teaching the course using CTE3D will be asked to judge its effectiveness in monitoring student achievement throughout the semester. Third, faculty members who have been teaching CTE3D courses for several years will be asked to compare students' abilities after using CTE3D with those in previous years who have not used CTE3D. Fourth, the final grades of students using CTE3D will be compared with those from previous years who have not yet engaged with these technologies.

**Potential Impact/Lessons Learned:** Students who complete the CTE3D curriculum demonstrate interest in pursuing stem cell research, potentially fulfilling major unmet needs, including cell therapy for treating heart failure. Medical students seeking a surgery residency will receive early experience in surgical repairs and grafts.

**References:**

1) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5829319/
2) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5737149/
3) https://www.ncbi.nlm.nih.gov/pubmed/29115019

**Customized Electronic Chart to Improve Teaching and Care in Orofacial Pain**

Vistoso, Anette; Nocera, Luciano; Clark, Glenn
*Herman Ostrow School of Dentistry; Viterbi School of Engineering; Herman Ostrow School of Dentistry*

**Idea/Problem Statement:** Design, develop and implement an EMR, including: smart questionnaires, diagnostic algorithms and suggestion for treatment plan protocols.

**Need/Rationale:** Health care students learn to document their cases using different templates for health care records, such as electronic systems. These methods have become popular considering the possibility of making this process very efficient. In recent years, we have seen the widespread implementation of electronic health record systems and the challenges related to recording the information accurately and in a time sensitive manner. If the information is collected in a more efficient way, the provider can spend more time analyzing the data and making decisions (Bauman et al., 2018; Newgart, 2012). Furthermore, the use of additional features, such as smart questionnaires and symptom checkers might contribute to the training process in collecting information and making decisions.

**Methods:** The first step will be creating a template of the clinical records needed in the center, which will include the data recorded in every appointment. This template will have all the information needed to determine the correct diagnosis. After, a complete system of smart questionnaires and diagnostic algorithms will review and create a database of the records that already exist in the clinic. A revision of the diagnostics already in the clinic's database will provide data for the algorithms. These algorithms will be reviewed by experts and treatment plans. They will also be involved in every diagnosis, allowing clinicians, students, residents and faculty to faster reach a diagnosis and treatment plan. The system will have different stages of tests to satisfy the HIPAA and professional requirements.

**Evaluation Plan/Results:** The delivery of this idea has five components: 1) Design the electronical medical record; 2) Development; 3) Test and comparison with the current system; 4) Implementation in the clinic; 5) Time efficiency measurement and focus group with the users. Since this project is in the "idea" stage, we have not tested yet; however, we plan to collect the data with focus groups of the users to evaluate the time efficiency, treatment and diagnostic accuracy.

**Potential Impact/Lessons Learned:** With a customized electronic medical record specific for the clinical of orofacial and oral medicine, we can obtain a more accurate diagnosis for the patient in less time.

**References:**

1) Lisa Ann Bauman, Jannah Baker, Adam G. Elshaug. The impact of electronic health record systems on clinical documentation times: A systematic review. Health Policy 122 (2018) 827–836. https://doi.org/10.1016/j.healthpol.2018.05.014
2) Craig D. Newgard. Electronic Versus Manual Data Processing: Evaluating the Use of Electronic Health Records in Out-of-Hospital Clinical Research. Acad Emerg Med. 2012 February; 19(2): 217–227. doi:10.1111/j.1553-2712.2011.01275.x.

**Implementing a Self-Directed Learning Plan During an Emergency Medicine Clerkship**

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**Idea/Problem Statement:** We implemented a self-directed learning plan for students to accomplish an educational goal during a fourth year emergency medicine (EM) clerkship.

**Need/Rationale:** Self-directed learning is an important part of the growth of medical students. It allows the student to take initiative and identify their own learning needs. As part of a pilot project at our institution, we developed and implemented a program for senior medical students rotating at our university based emergency department to self-identify and accomplish an educational goal by the time they completed their 4 week required EM clerkship. The students were free to develop an educational goal based on their own learning needs. It was suggested that the students consider focusing on a goal that could be applied directly to patient care such as improving or the application of medical knowledge or developing a clinical or procedural skill.

**Methods:** Guidelines to develop a self-identified educational goal and learning plan were distributed to the students prior to the start of their 4 week EM clerkship. The guidelines included the objective of the pilot project, a detailed step-by-step process to develop an educational goal and an independent learning plan. The guidelines included examples of an educational goal along with a self-identified goal worksheet. Each student was assigned a resident or faculty mentor to assist them in refining and accomplishing their goal. Mentor guidelines were also developed to guide and standardize the process. The students used a “SMART” acronym approach to develop their educational goal, which describes that a goal that should be: Specific, Measurable, Achievable, Relevant and Time-bound. In addition, the students reviewed the revised Bloom’s Taxonomy listing of action verbs to help them categorize the goal they set out to accomplish. The students were also provided with clinical release time during their EM clerkship (up to two, four hour blocks of time) to accomplish their goal.

**Evaluation Plan/Results:** In the first 4 months of the 2018-2019 academic year, all 39 students participated in the pilot program. Thirty three (85%) students completed a post-clerkship questionnaire. Twenty eight (85%) reported that they were able to accomplish their educational goal by the end of the rotation. Nineteen (58%) of the educational goals were categorized as procedural skills, 7 (21%) were clinical skills and 7 (21%) were knowledge base goals. The single most common (7, 21%) goal was learning how to perform an ultrasound guided peripheral intravenous line. Few students (3, 9%), used their clinical release time to accomplish their goal. All students felt it was helpful to use the SMART approach to develop their goal, 30 (91%), felt it was helpful to incorporate the revised Bloom’s taxonomy to categorize their goal. Thirty two (97%) reported that it was worthwhile to develop a goal and try to accomplish it. Most (30, 91%), felt that they were given enough time develop a goal and design a plan to accomplish it. All students felt it was helpful to be assigned a mentor and all students communicated with their mentors by email, 14 (42%) met face to face with their mentors during their rotation. Twenty nine (89%) students noted that they were likely to incorporate this type of activity into a future clinical rotation. All students reported that accomplishing their goal (or attempting to) provided them with new knowledge, a new clinical or procedural skill.

**Potential Impact/Lessons Learned:** Empowering students to self-identify and accomplish an educational goal is possible and achievable within a 4 week clerkship. Universally, the pilot program was viewed as a worthwhile experience and most students were able to accomplish their goal during the clerkship.

**References:**

**Using Text Messaging to Infuse Primary Care Education into a Packed Residency Program Curriculum**

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**Idea/Problem Statement:** Case-based curriculum delivered via weekly text messaging to boost primary care education in a pediatrics residency program.

**Need/Rationale:** As residency training requirements expand, space in the formal curriculum becomes constrained. In large academic medical centers, clinical service demands have a significant impact on how residents spend their time. Hospital-based medicine and subspecialty care often dominate residents' educational awareness and experience. During pediatrics residency program reviews at Stanford in recent years, residents have identified training in primary care as an area needing more attention. Given limited time and resources, efforts to expand the formal curriculum in general outpatient pediatrics have had limited success. As part of a broader effort to address the perceived need for more training in primary care, we launched a case-based curriculum, delivered via weekly text messaging to residents' mobile phones. Our goal was to weave a recognizable, enjoyable, yet unobtrusive educational thread through residents' weekly routines, so that primary care might take on a greater presence as part of the culture of the program.

**Methods:** The Primary Care Quick Text Curriculum was launched in 2015. Core learning objectives align with the formal, written curricula for continuity clinic and block rotations in primary care. Broad content areas include Prevention; Safety; Parenting; Common Physical Problems and Concerns; and Development and Behavior. Most texts are created by the program's faculty director. Residents and other faculty have contributed questions from time to time. Residents subscribe to the program by providing their cell phone numbers and mobile carriers to the curriculum director. Subscribers receive a Quick Text roughly once per week. Text messages consist of links to brief, case-based questions and answers – built using online survey software (Qualtrics, Provo, UT). Messages include 1-3 questions on a single topic and are designed to be informative and entertaining. Residents are not required to submit answers to questions in order to see associated teaching points. Participation is voluntary and entirely formative.

**Evaluation Plan/Results:** To date, we have not developed a plan to formally evaluate the program. Anecdotally, residents enjoy receiving texts. Some read them immediately on receipt; others save them for later review. We have the opportunity to analyze data on utilization and perceived value of the Quick Text program in promoting learning. The survey software used to build curriculum questions analysis descriptive analysis of which questions have been started and completed, how often residents answer questions vs. scrolling directly to responses, and other logistical aspects of resident participation. Our greatest interest is in learning whether and how to modify the curriculum – where to take it next - and whether it is helping us meet the goal of shining more light on education in primary care.

**Potential Impact/Lessons Learned:** Our work has the potential to add to the emerging literature on text messaging in medical education - particularly as a strategy to address unmet needs when curriculum time and resources are constrained.

**References:**

1) Draper L et al., Texting preferences in a Paediatric residency, The Clinical Teacher, 2017; 14: 401–406.

**Improving Curriculum of Global Health Courses with Machine Learning**

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**Idea/Problem Statement:** Degree-seeking students in healthcare fields are not learning the emotional and soft skills necessary to find, and succeed in, healthcare jobs.

**Need/Rationale:** Global Health jobs require applicants to have a baseline level of “hard skills” – for instance, the fundamental knowledge of biology, statistics, and access/barriers to health, We believe that an additional set of skills – deemed “emotional skills” and “soft skills” – are also necessary, both in finding a job in global health and prospering in it. Soft/Emotional skills can be summed up as “personal attributes that enable someone to interact effectively and harmoniously with other people.” While hard skills are routinely taught at universities, emotional skills and soft skills are rarely introduced. It is our goal to search online job listings in the Global Health field to identify the most sought after traits from applicants. If our numerical data shows a high demand for certain emotional/soft skills, it will provide us the rationale to integrate the teaching of soft/emotional skills into our Global Health curriculum, thus leading to more well-rounded and sought after applicants.

**Methods:** Data Collection: We created a custom “data crawler” to scan various leading job portals (i.e. indeed.com, Glassdoor, LinkedIn), flagging any job listings, within the greater Los Angeles area, that fall within the “global health” field. The data crawler separated out “global health” jobs based on our selection algorithm, flagging job openings that contained some keywords, including but not limited to: clinical, hospital, nutrition, biostatistics, and therapy. From there, each job listing flagged by the crawler is manually verified for authenticity. With a verified list of global health job openings in Los Angeles, we used an Information Extractor to scan each job description, identifying the most important skills in each description. We tried two separate approaches. First, we provided the Information Extractor with a comprehensive list of “emotional skills” and “soft skills” that we previously deemed important, and used the Extractor to keep track of the number of times these skills were highlighted in job listings. Secondly, we configured the Information Extractor to use the TF-IDF (term frequency and inverse document frequency) technique, thus identifying the most important words in the document. By filtering out “stop words,” our Information Extractor created its own list of high yield soft skills and emotional skills. Through these methods, we obtained a frequency chart for both soft and emotional skills.

**Evaluation Plan/Results:** The following results are from scanning 3,200 Los Angeles job descriptions in the Global Health field. In our first approach, where our Information Extractor scanned job descriptions from our previous list of soft/emotional Skills, these are the top 5 mentioned skills from each category: Emotional skills are Professional (n=853, 26.7%), Sensitivity (n=316, 9.9%), Caring (n=267, 8.3%), Empathy (n=172, 5.4%), and Good Listener (n=160, 5.0%). Soft Skills are Innovation (n=385, 12.0%), Teamwork (n=352, 11.0%). Communication Skills (n=322, 10.1%), Cooperation (n=223, 7.0%), and Initiative (n=183, 5.7%). In our second approach, we let the Information Extractor identify the most important words in the documents. The top 5 emotional skills identified included 4 from the previous list (Professional, Caring, Empathy, and Sensitivity), and included the term “Considerate” (n=153, 4.8%) as its fifth term. The top 5 soft skills identified included 3 from the previous list (Innovation, Teamwork, and Cooperation), and included the terms “Self Management” (n=240, 7.5%) and Judgment (n=240, 7.5%).

**Potential Impact/Lessons Learned:** We confirmed our belief that certain soft and emotional skills play a vital role in an applicant’s ability to get hired in the Global Health field. Soft and emotional skills must be emphasized by professors in our Global Health program to prepare graduates for success in the field

**References:**

1) "Mapping the global health employment market: an analysis of global health jobs" https://bmcpublichealth.biomedcentral.com/track/pdf/10.1186/s12889-018-5195-1
2) indeed.com, LinkedIn.com, GlassDoor.com

**Improving Common Curricula Deficits with Virtual Learning Videos**

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**Idea/Problem Statement:** Medical students will improve content retention, empathy, and burn-out through standardized videos which supplement curricular patient interactions.

**Need/Rationale:** Across the country, there is a movement among medical schools to reform their curriculums in ways that improve knowledge retention, improve empathy, and reduce learner burn-out. Studies have found that virtual technology improves knowledge retention in contrast to traditional lectures. Despite the desire to improve, there is a decline in empathy throughout their time in school and burn-out is a common problem among learners. With these goals in mind, we plan to develop a series of educational videos that can be integrated into the first two years of medical school curricula and are designed to improve medical student retention, increase empathy, and reduce burnout. This will be achieved through greater exposure to patient experiences and common scenarios seen in a clinical setting.

**Methods:** Our project will focus on improving first and second-year medical student curriculum through online videos. Over the course of eight months, we will produce ten videos at the Medical College of Wisconsin. We will recruit community physicians and patients to participate in both one-on-one interview and demonstrative exam videos. They will be chosen through a pre- interview process to determine qualities that are beneficial to the goals of the video such as charisma, knowledge and medical history. Scripts for the videos will be written by the team by combining important concepts from relevant Step 1 material as well as pre-interview material. Once videos have been created, 50 first-year medical students will be recruited and randomly divided into a control group and an experimental group. The experimental group will be shown a set of newly created videos and lecture content from previous years, while the control group will only be shown the previous years' material. Both groups will take a multiple-choice exam on the content of the videos as well as subjective questions regarding empathy and burn-out as it relates to the videos. After two weeks they will be asked to take the same exam but with randomized question order. They may request correct answers post reexamination.

**Evaluation Plan/Results:** Exam results will be used to compare immediate retention and retention after two weeks. Each of the 5 sets of videos will be uploaded online and viewers will be encouraged to complete an online feedback form. Questions will inquire on topics such as content quality, application, and potential impact on empathy and burn-out. Feedback will be reviewed for common themes and changes may be made to future and current videos to improve their quality and appeal to viewers. Feedback will also be sought one-on-one from professors as to how they might be able to implement videos into their lectures.

**Potential Impact/Lessons Learned:** Integration of content nationally will improve knowledge retention and address known deficits in current curricula subsequently producing competent and compassionate physicians with good character traits.

**References:**

1) Issa, N., Mayer, R. E., Schuller, M., Wang, E., Shapiro, M. B., & DaRosa, D. A. (2013). Teaching for understanding in medical classrooms using multimedia design principles. Medical Education, 47(4), 388–396. https://doi.org/10.1111/medu.12127
2) Hojat, M., Mangione, S., Nasca, T. J., Rattner, S., Erdmann, J. B., Gonnella, J. S., & Magee, M. (2004). An empirical study of decline in empathy in medical school. Medical Education, 38(9), 934–941. https://doi.org/10.1111/j.1365-2929.2004.01911.x
3) Ishak, W., Nikravesh, R., Lederer, S., Perry, R., Ogunyemi, D., & Bernstein, C. (2013). Burnout in medical students: a systematic review. The Clinical Teacher, 10(4), 242–245. https://doi.org/10.1111/tct.12014

**Telehealth Innovations and Technologies:**
**Training the Next Generation of Healthcare Professionals**

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**Idea/Problem Statement:** A telehealth training model for all healthcare professionals to competently deliver clinical services in an evolving technological environment.

**Need/Rationale:** In an era of rapidly evolving technologies, the next generation of healthcare professionals must become competent in delivering clinical services remotely. Nationally, however, little standardized telehealth education exists in training programs. The US Department of Veterans Affairs (VA) is working to provide a formalized model of telehealth education for its more than 120,000 trainees from 165 allopathic and osteopathic medical schools and over 1,800 unique colleges. The VA has already delivered over 12 million telehealth encounters and has developed extensive educational materials for its clinicians. Now the VA is using its clinician telehealth curriculum and telehealth best practices to design a telehealth education infrastructure for all healthcare trainees who rotate through its more than 150 facilities (1). In the process VA is addressing policy issues to facilitate telehealth for trainees, including: 1) Legislation to address trainee licenses to deliver telehealth across state lines, and 2) Accrediting body regulations (e.g., ACGME) regarding remote care by and supervision of trainees.

**Methods:** This intervention focuses on the 120,000+ healthcare professional trainees that rotate through over 150 VA healthcare facilities throughout the nation. The development of standardized national telehealth education began with an assessment of the scope of telehealth training and found 69% of all medical centers were providing individualized telehealth training opportunities for trainees. The intervention to provide national standardized telehealth education for trainees is: 1) Using existing VA Telehealth Training Curricula for clinicians and making it available to all trainees; 2) Developing an inventory of telehealth trained clinicians and pairing them with trainees for supervised telehealth training opportunities; 3) Cataloguing best practices in telehealth training at VA facilities throughout the country; 4) Addressing policy obstacles such as training license and accreditation agency limitations. Graduate, undergraduate and associated health trainees are receiving telehealth didactics, participating in live interactive telehealth simulation sessions, and being matched with experienced telehealth supervising attendings to conduct their own telehealth services. Training will address video across healthcare facilities (e.g., from the main medical center to outpatient clinics) and video delivered to the patient via mobile devices (e.g., into their home on smart phones), along with store and forward modalities (e.g., dermatology and pathology) and future web-based applications.

**Evaluation Plan/Results:** Evaluation of the development of a national standardized telehealth education model for trainees will be measured quantitatively and qualitatively. The numbers and expansion of didactic web-based trainings completed by trainees will be tracked along with the volume of their simulation sessions. Each facility will provide data on the numbers and types of telehealth trainee opportunities they are offering, and we are developing a coding mechanism to be able to more quickly and accurately identify and track telehealth encounters that are specifically delivered by trainees. Once in place we will be able to evaluate successful expansion across sites, disciplines, specialties, and telehealth modalities. Telehealth satisfaction surveys for providers and patients will be expanded to specifically assess trainee attitudes towards the telehealth training and experience itself. We will also be reviewing survey information collected by the academic affiliates.

**Potential Impact/Lessons Learned:** The development of standardized telehealth education can serve as a model for providing the future generation off all healthcare trainees with competence in the skills necessary for them to deliver effective care in an era of innovative and evolving technologies.

**References:** 1) www.telehealth.va.gov

**Impact of Non-Credit Summer Anatomy Course on Performance-Based Entry into Medical School**

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**Idea/Problem Statement:** Implementation of an introductory Summer Anatomy course may ease the transition into a rigorous medical school curriculum.

**Need/Rationale:** Despite rigorous medical school prerequisites, encountering medical school curriculum for the first time can be overwhelming, with anatomy often acknowledged as one of the most challenging courses. Touro College of Osteopathic Medicine in Harlem (TouroCOM) offers a one-year, 43 credit, Master of Science Program in Interdisciplinary Studies in Biological and Physical Sciences (MS) program, which features classes taught by medical college faculty alongside Doctor of Osteopathic Medicine (DO) candidates. Success in the program guarantees students direct admission into the DO program at TouroCOM. TouroCOM offers a non-credit, four-week, intensive summer anatomy course, which aims to ease the transition into a medical school-level curriculum for both incoming MS and DO candidates. This study aims to evaluate the effectiveness of TouroCOM's four-week Summer anatomy course in preparing its MS candidates for their 43 credit curriculum and successful promotion into the DO program.

**Methods:** Subjects consisted of all MS candidates from the class of 2016 and class of 2017 at Touro College of Osteopathic Medicine in Harlem. Quantitative data was collected on written and practical exam performance throughout the first semester anatomy course as well as final course grade. Qualitative information was also gathered on participation in the four-week summer anatomy program and successful promotion into the DO program. Statistical significance was measured by comparing percentages of grouped study participants with one sample t-testing and the resulting p-values. Results with a p-value under 0.05 were reported as statistically significant.

**Evaluation Plan/Results:** Summer anatomy course participation was ultimately correlated with successful subsequent promotion into the DO program and final course grade for 1st semester anatomy. Of the 138 total participants included in this study, 26 students from the class of 2016 and 16 students from the class of 2017 participated in the summer anatomy program. Of the 2016 and 2017 MS candidates who were promoted into the following DO class, 69% (n=38) received a final course grade of A- or above in first semester anatomy. Only 3.6% (n=2) of 2016 and 2017 MS candidates who received a final first semester anatomy course grade of B- or below went on to promote into the DO class.

**Potential Impact/Lessons Learned:** It may be of value for medical schools to offer a similar, non-weighted introductory course to students entering their first year of medical school to ease the transition into a rigorous medical school curriculum and establish a strong foundation for future practice as a physician.

**References:**

1) Epps, A. C. (2015). The strategic impact of a post baccalaureate pre-medicine intervention program on medical school academic performance. Journal of health care for the poor and underserved, 26(1), 8-20.
2) Herling, P. J., Mohseni, B. T., Hill, D. C., Chelf, S., Rickert, J. A., Leo, J. T., & Langley, N. R. (2017). Impact of anatomy boot camp on students in a medical gross anatomy course. Anatomical sciences education, 10(3), 215-223.

**Educational Course Utilizing Online Game-Based Learning to Improve Sleep in High School Students**

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**Idea/Problem Statement:** Sleep deprivation is a prevalent issue in among teenage students, which is harmful to their health, academics, and well-being.

**Need/Rationale:** It is well established that adolescents require a certain amount of sleep to promote healthy growth, development, and performance. However teenagers continue to get sub-optimal amounts of sleep on a regular basis. Homework, extracurricular activities, social influences, electronics, and responsibilities at home impact adolescents' ability to get adequate sleep. Additionally, adolescents' circadian rhythms, controlled by the release of melatonin, are normally shifted later compared to what adults and children experience. This unique physiology makes it difficult for teens to adapt their sleep schedule to a "normal" school or work day and still get the recommended amount of sleep. Adolescent sleep researchers highlight the importance of sleep education to help teens understand and develop more healthy sleep behaviors. This study investigated whether an interactive after-school course and journal project would improve high school freshmen's sleep literacy and habits regarding sleep.

**Methods:** A curriculum was designed to teach high school freshmen at Bravo High School about topics including sleep physiology, the impacts of sleep and sleep deprivation on health, and behavior changes to help improve sleep. Subjects were recruited with help from school administration through their required Health class. Selected students attended four 1-hour long classes held at the high school after school hours. The classes were taught by the principal investigator and consisted of interactive lectures and discussion, as well as a 4-week sleep behavior change project and journal. The lectures were supplemented by the use of Kahoot!, a popular game-based learning platform that allows students to answer instructor's questions and contribute discussion points using their smart phones or computers. Pre- and post-course surveys recorded hours of sleep, bed times, and sleep-related knowledge. Journals created by the participants also elicited helpful information including nightly sleep hours, personal goals for sleep-related behavior changes, and challenges with sticking to these goals. PHQ-9 assessments were also utilized to measure student depression. Of the 29 students who were recruited, 18 (6 boys, 12 girls) completed all parts of the course and were included in statistical analysis. T-tests were used to analyze pre- to post-test change in mean test scores and hours of sleep, and linear regression was used to determine the trendline of sleep hours over the course of the study.

**Evaluation Plan/Results:** By the conclusion of the course, students' performance on the post-survey demonstrated an overall improvement in their sleep knowledge ($p=0.003$). Total number of sleep hours trended upward over the course of the 4-week sleep behavior change project ($R2=0.0045$). In 2016, this curriculum was used without the aid of Kahoot game-based learning, and changes in sleep knowledge were evaluated using the same pre- and post-survey as was used in this study to teach a different sample of 18 high school freshmen at Bravo. In this 2018 study where Kahoot was used to supplement the curriculum, post-survey scores were increased compared to those in the 2016 study without Kahoot ($p=0.052$). Homework was the most common barrier which prevented students from getting their desired amount of sleep, cited by 83% of students as a reason for not sleeping more. The two most common ways students were successful in getting to bed earlier were (1) by being more efficient with their homework throughout the day (37% of students), and (2) by reducing the use of technology prior to going to bed (37% of students). Students reported increased use of a consistent bed time on weeknights and weekend nights as a sleep aid, which was a key teaching point. PHQ-9 scores trended downward over the course of the study, as did the number of subjects with moderate or more severe depression. Subjects reported improvements in mood, tiredness, and energy, and less caffeine use.

**Potential Impact/Lessons Learned:** Educational intervention plus an interactive task may improve sleep and health in high school students, which can help students feel better and perform better at

school. Programs such as this will also highlight the specific barriers students face which prevent them from getting adequate sleep.

**References:**


1) Owens, J., & Weiss, M. (n.d.). Insufficient sleep in adolescents: causes and consequences. Minerva Pediatr, 2017, 69(4), 326–336. https://doi.org/10.23736/S0026-4946.17.04914-3
2) Dewi, Rian Kusuma, et al. “Adolescents’ Smartphone Use at Night, Sleep Disturbance and Depressive Symptoms.” International Journal of Adolescent Medicine and Health., Walter de Gruyter, Nov. 2018, doi:10.1515/ijamh-2018-0095
3) Jamil, Zehra, et al. “Preclinical Medical Students’ Perspectives on Technology Enhanced Assessment for Learning.” JPMA. The Journal of the Pakistan Medical Association., 2018, vol. 68, no. 6, Pakistan Medical Association, pp. 898-903.

**Shining without Burning Out:**
**Finding the Link between Personal Wellness and USMLE Step 1 Scores**

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**Idea/Problem Statement:** Measure trajectory of burnout and personal wellness practices of second year medical students as predictors of USMLE step 1 score.

**Need/Rationale:** “Burnout” has become a hot topic in the domain of learners and clinicians, including physicians, residents, medical students, and even undergraduates considering the medical field. The concept has been linked to not only poor patient outcomes, but also individual struggles with depression, anxiety, empathy and professionalism (Dyrbye et al., 2008), both in the United States and internationally (Guruprakash et al., 2018). More concerning, burnout has also been tied to increased suicidal ideation, which is an ever-expanding burden across the country. Despite a growing understanding of the risks and potential interventions for exhausted learners, students continue to experience burnout at alarming rates. This negative outcome is underpinned to some extent by the pressure faced by medical educators and students alike to ensure they fulfill curriculum requirements and maximize their accomplishments – including high performance on the USMLE – in order to excel in a remarkably competitive atmosphere. With the myriad studies of associations between student-resident-physician burnout and various personal, professional, and patient outcomes, to date no studies have examined how medical student burnout may predict USMLE step 1 performance. The current study seeks to fill this study gap and potentially highlight the necessity of focusing on student wellness as a foundational component of medical education programs, as well as the independent study strategies taught to learners.

**Methods:** The sample will include approximately 100 second year medical students at Central Michigan University in Mt. Pleasant, MI. Students will be assessed regarding their burnout and coping mechanisms at two different time points: first, early in the academic year, and second, prior to taking the USMLE Step 1. Responses to questionnaires will then be correlated with USMLE Step 1 performance, once scores are released. Assessments will include the Maslach Burnout Inventory (MBI) (Maslach and Jackson, 1981) as well as a survey of personal wellness techniques used and time devoted to personal wellness. The MBI is a 22 item survey of work-related feelings including subscales of emotional exhaustion, depersonalization, and personal accomplishment. Surveys will take between 5-10 minutes to complete and will be voluntary for students. Individual responses will be kept confidential, and identifying data will only be used to properly link USMLE scores to surveys. Data analysis will be performed with an entirely deidentified data set.

**Evaluation Plan/Results:** Analysis will seek to identify trends in medical student burnout over the course of the academic year leading up to USMLE Step 1. These trends will be compared to individual wellness practices reported by students. Finally, the relationship between wellness practices / burnout scores and USMLE Step 1 scores will be evaluated. The goal of the research design is to isolate factors associated with trends in burnout of medical students as well as predictors of USMLE Step 1 performance.

**Potential Impact/Lessons Learned:** Results may encourage learners and educators to include burnout prevention and wellness practices as essential considerations while devising independent study techniques and curriculum design. This has the potential to not only improve mental health of students, but also USMLE Step 1 scores.

**References:**

1) Debyre, L., Thomas, M., Massie, S., et al. (2008). Burnout and Suicidal Ideation among US Medical Students. Annals of Internal Medicine; 149: 334-341.
2) Maslach C, Jackson S. The measurement of experienced burnout. J Occup Behav. 1981;2: 99–113.

3) Guruprakash, K., Mehta, S., Atul, B., et al. (2018). A study of relationship between perceived stress, coping pattern, burnout, and general psychopathology among the postgraduate medical students. Industrial Psychiatry Journal; 27(1):141-146

**Burnout and Wellness Among Residents Across Disciplines: A Pilot Examination**

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**Idea/Problem Statement:** This project aims to take an initial, pilot approach to examining factors associated with burnout, satisfaction, and perceptions of wellness.

**Need/Rationale:** This research will be a crucial first-step examination into the general well-being and job satisfaction of neurology and psychiatry residents. The concept of “burnout” has been operationally-defined as physical and emotional drain that begets a reduced ability, or inability, to perform work and care-giving tasks adequately. Literature in this field reveals that the prevalence of burnout may peak during medical education, including medical school and further training (i.e., residency). The implications of burnout are far-reaching, having an impact on both professional care delivery and self-care. Professionals who provide health and human services stand out as a group at a particular risk for burnout. Research has previously indicated that lower rates of burnout are an indicator of wellness, but this has not been appropriately validated empirically. The importance of wellness, however, is so entrenched in the culture of clinical practice that medical education settings have introduced policies in recent years to promote well-being among learners. Longstanding theories of career development that extol the importance of strong self-concept and satisfaction as well as the simultaneous attention given to burnout and wellness in the literature suggest that their relationship is likely beyond contrived.

**Methods:** Using a model previously employed with an international healthcare staff, residents in neurology, child neurology, and psychiatry will be administered the Maslach Burnout Inventory Human Services Survey for Medical Personnel (MBI-HSS (MP)), the Patient Health Nine-Item Questionnaire (PHQ-9), and the Accreditation Council for Graduate Medical Education (ACGME) Well-Being survey questions at 0, 6, and 9-month time points. The anticipated N for the study is 51 residents. In addition to descriptive statistics, means-analyses will be run within and across groups, as well as examining the goodness-of-fit to the concept of the ACGME well-being questions.

**Evaluation Plan/Results:** Participants from adult neurology, adult psychiatry, and child neurology residency programs will be provided with a link for an online survey, hosted by a secure server to facilitate anonymity and confidentiality (SurveyMonkey.com). Their participation will be non-compulsory (i.e., participation will NOT be a requirement of their training or education), and they will be compensated for their time ($5 Starbucks gift card). They will have the right to discontinue at any time, at no cost or penalty. Participants will complete a brief demographic survey; questions will include (but may not be limited to) residency year, residency track, age, and gender (if they choose to respond). These demographic variables will be linked to a generated, anonymous participant ID. No names or identifying information will be collected. Participants will respond to an electronic version of the MBI-HSS (MP), PHQ-9, and the ACGME Well-Being Survey.

**Potential Impact/Lessons Learned:** These results will guide further experimental intervention to bolster any deficits that may be identified with regard to burnout and wellness. Further, with minimal adjustments, the project should be applicable to residency programs in other specialties.

**References:**

1) Eckleberry-Hunt J, Van Dyke A, Lick D, Tucciarone J. Changing the Conversation From Burnout to Wellness: Physician Well-being in Residency Training Programs. Journal of Graduate Medical Education. 2009;1(2):225-230. doi:10.4300/JGME-D-09-00026.1.
2) Piko BF. Burnout, role conflict, job satisfaction and psychosocial health among Hungarian health care staff: a questionnaire survey. Int J Nursing Studies. 2006;43:311–318. doi: 10.1016/j.ijnurstu.2005.05.003.
3) Super DE. A theory of vocational development. American Psychologist. 1953;8(5):185-190.

**Implementing a Spiritual Care Curriculum into a Pediatric Residency Program**

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**Idea/Problem Statement:** Pediatric residents receive little to no formal training in how to address the spiritual and religious needs of their patients and families.

**Need/Rationale:** An important aspect of caring for the biopsychosocial needs of patients is addressing their spirituality, and it has been shown that the majority of patients would welcome their physician's inquiry regarding their spiritual needs. Moreover, many physicians feel that faith plays an important role in healing. Despite this, large review studies have shown that physicians infrequently address the spiritual needs of their patients. One of the largest barriers that physicians report when asked about why spirituality is infrequently addressed is lack of training as to how to approach this topic with their patients. The ACGME emphasizes training physicians to address the biopsychosocial aspects of a patient's health through competency-directed curricula that address interpersonal communication skills. However, few curricula have been developed to teach physicians how to incorporate spiritual care into their practice and few spiritual care curricula exist amongst residency training programs.

**Methods:** A needs assessment survey was sent to pediatric residents during the 2017-2018 academic year to assess attitudes and practices involving spiritual care in medicine. A three-part, longitudinal and iterative curriculum was designed to address these identified needs and was implemented during the 2017-2018 academic year. Session one was a sixty-minute conference that provided an introduction to the importance of spiritual care in medicine and involved discussion of the basic tenets of five common world religions at a large, urban, academic children's hospital. Session two was a twenty-minute case-based role-play activity that taught residents how to take a spiritual history through use of an evidence-based spiritual assessment tool—the HOPE model. Session three was a sixty-minute case-based discussion panel comprised of physicians, nurses, chaplains and social workers, emphasizing the interdisciplinary approach to spiritual care. A follow-up survey was distributed at the end of the curricular intervention. Surveys were anonymously coded to be able to assess changes in residents' knowledge of spiritual care, attitudes regarding its importance in medicine, and residents' ability to implement spiritual care into their clinical practice. Surveys were analyzed based on qualitative data provided on a likert scale of 1 to 5 (strongly disagree to strongly agree) and were assessed for statistically significant trends using the one-tailed paired-T test with a p-value of 0.05.

**Evaluation Plan/Results:** A total of 60 needs assessment surveys and 42 post-curriculum intervention surveys were collected. Comparing unique identifiers from pre- and post-surveys, a total of 23 participants were noted to have completed both surveys. Results were then analyzed using a one-tailed paired t-test with a p-value of 0.05. After the intervention, residents felt more strongly that addressing spiritual/religious beliefs with patients is a necessary component of a complete history ($p=0.043$) and felt more competent addressing spirituality/religion with patients and families ($p=0.017$). In addition, residents expressed increased interest in learning more about how to address spirituality/religion with their patients ($p=0.029$). Residents also felt that their comprehension of hospital-wide spiritual care resources increased after the intervention ($p<0.001$), moreover, more residents reported utilization of institutional spiritual care resources (43.5% vs 73.9%, $p=0.008$). Residents continued to report that lack of time was the most significant barrier to their incorporation of spiritual care in their practice (95.6% post-intervention); however, fewer residents felt that little understanding of how spiritual care affects patients was a barrier to their practice of spiritual care (34.8% vs 8.7%, $p=0.011$ via two-tailed paired t-test). Of all residents who completed the post-intervention survey, 92.9% either agreed or strongly agreed that this intervention added value to their residency education.

**Potential Impact/Lessons Learned:** Implementing this spiritual care curriculum increased residents' awareness of their patients' spiritual needs and competence in addressing those needs. This spiritual care curriculum is easily reproducible and could be utilized by other institutions to achieve similar results.

**References:**


1) Barnes LL, Plotnikoff GA, Fox K, Pendleton S. Spirituality, religion, and pediatrics: intersecting worlds of healing. Pediatrics. 2000;106(4 Suppl):899-908.
2) Best M, Butow P, Olver I. Do patients want doctors to talk about spirituality? A systematic literature review. Patient Educ Couns. 2015;98(11):1320-8.
3) Anandarajah G, Hight E. Spirituality and medical practice: using the HOPE questions as a practical tool for spiritual assessment. Am Fam Physician. 2001;63(1):81-9.

**Improving Resident Wellness and Preventing Burnout through Emotional Intelligence Training**

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**Idea/Problem Statement:** The project uses the "Emotional Intelligence 2.0" book as a platform to provide a structure for topic discussion and the pre/post-test for evaluation.

**Need/Rationale:** Physician burnout and suicide continue to be a major challenge for the medical profession. Physician burnout is associated with negative consequences on patient care, healthcare system costs, and physicians' own care and safety (11). An estimated lost productivity annually is equivalent to the loss of seven medical school graduating classes (13). Estimated costs to replace one physician range from hundreds of thousands to well over one million U.S. dollars, depending on specialty, practice location, and the duration of the unfilled vacancy (12). Burnout is an effective state of emotional, mental, and physical exhaustion caused by excessive and prolonged stress. Although burnout can be prevented with professional help, previous work has demonstrated that over 60% of physicians report a concern over the stigma associated with mental healthcare preventing them from seeking professional help (4). Therefore, there should be a tool that provides individuals with the skills they need to overcome the symptoms of burnout and achieve the joy and fulfillment that a career in medicine once promised. In the past few decades, in searching for an answer to battle physician burnout, the concept of emotional intelligence (EI) emerged and seemed to have a strong inverse relationship to burnout. Unfortunately, few, if any, programs are focused on improving EI to provide physicians with the skills they need in a setting that would allow them to circumvent the stigma associated with seeking mental health care.

**Methods:** Step 1: In August 2018, a 30-min presentation on the project's objectives and methods was conducted. Residents of all years (CA1, 2 and 3) took an online pre-test using the code in the book, "Emotional Intelligence 2.0" by Travis Bradberry and Jean Greaves. Maslach burnout inventory and a short demographic data were collected pre-training. Each resident was assigned a unique ID that was used to record all collected data and tests. Step 2: In the upcoming four months, four skills (self-awareness, self-management, social awareness, and relationship management) of emotional intelligence will be discussed during a 30-min interactive presentation. The concept of each skill as well as the strategies to improve individual's competency will be discussed. Dedicating one month to learning one skill will allow each individual time to incorporate the newly learned skill into their daily work/activity, with the hope of improving their emotional intelligence. Additionally, residents will be encouraged to take note of what change that they may observe to share with the group in subsequent presentations. Step 3: At the end of the four months, all residents will use the same code that they were provided in Step 1 to take an online post-test and a short post-training survey to objectively and subjectively evaluate their experience with the training. The results from the post-test and survey will be used to evaluate the effectiveness of the training on individual perceptions of wellness pre- and post-training.

**Evaluation Plan/Results:** This project is intended to be an observational study only. Therefore, no hypothesis or predicted outcomes have been made. In addition, the small sample size (N=15) will not allow drawing any meaningful statistic conclusion. This project intends to provide residents with a tool to improve their EI with hope that these skills will help improve their wellness and prevent burnout throughout their residency training and career in medicine. The objective measurements using the pre/post-test score from the book will provide some insight on the benefit and effectiveness of the training.

**Potential Impact/Lessons Learned:** The project has a potential for future training and studies with increased sample sizes in subsequent years. If found to be beneficial and effective, the training may be replicated by other residency programs within or beyond our institution.

**References:**


1) Cherry MG, Fletcher I, O'Sullivan H, Dornan T. Emotional intelligence in medical education: a critical review. Med Educ. 2014; 48:468-478.
2) Kozlowski D, Hutchinson M, Hurley J, Rowley J, Sutherland J. The role of emotion in clinical decision making: an integrative literature review. BMC Medical Education. 2017;17: 255.
3) Simpkin A, Khan A, West DC, Garcia BM, Seetish TC, Spector ND, Landrigan CP. Stress from uncertainty and resilience among depressed and burned out residents: a cross-sectional study. Academic Pediatrics (2018), https://doi.org/10.1016/j.acap.2018.03.002.

**Learning from Our Mistakes: Utilizing Just Culture Methodology to Improve Resident Education**

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**Idea/Problem Statement:** Learning from Our Mistakes: Utilizing Just Culture Methodology to Improve Patient Safety and Physician Wellbeing in a Family Medicine Residency.

**Need/Rationale:** Medical errors are one of the leading causes of morbidity and mortality in hospitals throughout the US today. A strong focus on the reporting of unexpected clinical events and "near misses", and the development of a strong patient safety focused culture, are critical to achieving the goal of safer patient care. Developing a culture that recognizes human errors and behavioral choices as possible system failures that require investigation and evaluation is essential. Just Culture is a methodology that has been studied in multiple settings and effectively uses algorithms to address what are referred to as breeches and duties. While typically applied to patient care settings we have adapted the curriculum to address challenges and difficult decisions within the residency program. Some of these relate to patient care, while others relate to organizational processes. Just Culture provides tools to help improve the process of education and making of decisions with a purpose to change systems rather than punish. Acceptance of the concepts of human fallibility within a residency program creates a new mindset to promote professionalism as a value. Residents participate in a curriculum that teaches focusing on accountability amongst all health care team members for behavioral choices. Just Culture gives us a curriculum to teach residents that our limited resources can be applied to minimize risk of harm in multiple settings. The purpose is to change processes, not punish!

**Methods:** Residents are given expanded training in the Just Culture (JC) model from the Chief Patient Safety Officer and DIO. A "Just Culture Committee" of residents from all levels of training was created to apply the JC model to resident related issues, identify root causes and propose solutions. All team members are encouraged to bring forward topics for discussion during monthly meetings. JC champion is identified annually and leads process for group. JC methodology is used to address 5 fundamental questions: What happened? What normally happens? What does procedure require? Why did it happen? How are we managing it? Each case then is moved through a series of JC algorithms, which guide the conversation toward a root cause. A determination is made as to whether the event in question was a failure at an organization level, if it represents human error, or if the individual's behavior was at risk or reckless. Action plans include proposed changes to policies and procedures, individual coaching, remediation, or other appropriate disciplinary actions. Punishment is reserved for reckless behavior and/or repetitive errors or repetitive at risk behaviors that cannot be controlled or managed by other means. These plans are then sent to the Program Director, who considers the committee's recommendations in final decision making on situations affecting residents and residency program concerns.

**Evaluation Plan/Results:** The ultimate goal of our implementation of Just Culture and the Just Culture Committee is to improve patient safety and build team cohesiveness by empowering all team members to voice their concerns in real time. We are able to track the number of instances of events submitted to our hospital's Event Reporting System. Within the residency program, we continue to monitor the effectiveness of the JC Committee through informal conversations held during resident meetings, as well as annual surveys assessing the residents' awareness of and attitudes regarding the committee. In examining process and procedural improvements through the application of this model, we can gather data to compare previous rates of preventable adverse events. Thus, we can understand if the changes made by the team improve patient outcomes or increase patient safety. We also aim to evaluate the effect the process has on resident's feeling of wellness related to patient safety and challenging decisions.

**Potential Impact/Lessons Learned:** We ultimately seek to empower our residents to champion cultures of safety in their future positions. Directly applying the Just Culture model as part of their training

provides a framework for doing so. Ultimately, this model can lead to enhanced patient outcomes, and improved physician wellbeing.

**References:**


1) Donaldson MS. An Overview of To Err is Human: Re-emphasizing the Message of Patient Safety. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr
2) Nevalainen M, Kuikka L, Pitkälä K. Medical errors and uncertainty in primary healthcare: A comparative study of coping strategies among young and experienced GPs. Scandinavian Journal of Primary Health Care. 2014;32(2):84-89. doi:10.3109/02813432.2014.929
3) Boysen PG. Just Culture: A Foundation for Balanced Accountability and Patient Safety. The Ochsner Journal. 2013;13(3):400-406.

**Seeking Methods of Increasing Intrinsic Motivation to Exercise amongst US Health Care Providers**

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**Idea/Problem Statement:** Using dance to increase intrinsic motivation in health care providers, potentially promoting long-term adherence to exercise and associated benefits.

**Need/Rationale:** Burnout is not only an under recognized crisis but also an increasing problem among Health Care Providers (HCP). However, an increase in exercise has been strongly correlated with reduced overall perceived stress and symptoms of burnout and depression (9). Though, the various physical, mental, and emotional benefits of aerobic exercise are well known, many HCPs like physicians and nurses still do not engage in recommended hours of aerobic exercise. This study seeks to find an effective and potentially long-term exercise option for health care professionals in order to promote self-care and holistic wellbeing among a mentally and emotionally overwhelmed people group.

**Methods:** We will be using a pre- and post-survey to evaluate changes in motivation amongst health care professionals. The pre-survey will be given before participation in any dance class and the post survey will be given to every individual after their completion of five dance classes. The pre- and postsurvey is the same survey allowing us to measure change in motivation. Participants will be given a unique identifier to keep survey information confidential and participants pre- and post-surveys correctly matched up. The dance classes will be taught by four medical students and all classes will be focused on increasing intrinsic motivation through being fun, engaging, at an appropriate difficulty level. The dance classes will only be 30-40 minutes long and will occur at various times during the week giving many opportunities to participants to attend their five classes. Once we have collected all the surveys, Cronbach's alpha will be used to analyze data.

**Evaluation Plan/Results:** We expect to recruit at least 40 Health Care Providers from the medical school, Texas Tech clinics, and nearby hospitals via flyers, word of mouth, and email. The study will end when 40 participants complete their pre- and post surveys. If we are unable to recruit the desired amount of people within a three-month period, we will attempt to recruit from other health care centers other than those initially targeted. Throughout the study, if we notice that participants have not returned for dance classes in more than two weeks, we will follow up with them via the participant's preferred method of communication. Since every participant will likely be at a different level of dance ability, we will make sure to teach classes that cater to our diverse participants in order to maximize their experience.

**Potential Impact/Lessons Learned:** If dance successfully increases intrinsic motivation among HCP's, dance could potentially be an effective long-term aerobic exercise alternative to HCP's promoting physical, mental, and emotional wellness in a population of need.

**References:**

1) Lyndon A. Burnout Among Health Professionals and Its Effect on Patient Safety. PSNet: Patient Safety Network. https://psnet.ahrq.gov/perspectives/perspective/190/burnout-among-health-professionals-and-its-effect-on-patient-safety. Published February 2016.
2) Markus Gerber, Serge Brand, Catherine Elliot, Edith Holsboer-Trachsler, Uwe Pühse, Johannes Beck. Aerobic exercise training and burnout: a pilot study with male participants suffering from burnout. BMC Research Notes. https://bmcresnotes.biomedcentral.com
3) Ryan RM, Vallerand RJ, Deci EL. Intrinsic Motivation in Sport: A Cognitive Evaluation Theory Interpretation . Cognitive Sport Psychology. 1984:230-242.

**Pediatric Resident Curriculum on Addressing Parental Vaccine Hesitancy**

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**Idea/Problem Statement:** A multimodality curriculum designed to improve pediatric residents' techniques, confidence, and success in counseling vaccine-hesitant caregivers.

**Need/Rationale:** Vaccination rates have declined over the past decade due to erroneous claims on the association between vaccines and autism (1). A third of California schools with low vaccination rates cluster in Los Angeles County, resulting in outbreaks of vaccine-preventable diseases (VPDs) such as measles and pertussis (2). Unfortunately, pediatric resident physicians often lack the confidence to effectively address parental vaccine hesitancy (3). Such trepidation is likely due to residents' minimal first-hand experiences with VPDs, resulting in misinformation and under-appreciation for vaccination benefits. Increasing popularity and accessibility of anti-vaccination social media platforms further challenge residents' conviction in counseling vaccine hesitancy. Past curriculums utilized mainly lectures and role-playing to improve resident knowledge and counseling techniques. This project aims to expand upon traditional learning modalities to create a tailored curriculum for residents in the modern post-vaccination era.

**Methods:** A multimodality curriculum will be implemented during the 2018-2019 academic year. Workshop series will take place during resident educational hours, such as noon conferences and clinic lectures for maximal attendance. The workshops will introduce residents to VPDs and their sequelae, common vaccination misconceptions, vaccine hesitancy counseling strategies, and popular anti-vaccination social media platforms. Vaccine advocacy experts and VPD survivors will be invited to share personal stories to bridge residents' gaps in first-hand knowledge and experiences with VPDs. Residents will participate in role-playing simulations and receive real-time feedback from faculty physicians and peers on their counseling techniques. Social media workshops will train residents to not only critically evaluate and discuss anti-vaccination sentiments with caregivers, but also to utilize online platforms for vaccine advocacy. Residents will also receive training on documenting immunization acceptance versus refusal in AltaMed's electronic medical record system.

**Evaluation Plan/Results:** The project will evaluate 1) changes in resident physicians' knowledge and confidence in vaccine hesitancy counseling and, 2) changes in influenza vaccine acceptance rate at the CHLA's primary care clinic, AltaMed. Learners will complete anonymous pre- and post-curriculum surveys on attitudes on vaccine hesitancy and experiences with VPDs. Collective and individual de-identified responses will be compared to assess for interval changes. Influenza vaccine administration rate during the 2018-2019 academic year will be collected from AltaMed and be compared to the administration rate from the previous academic year.

**Potential Impact/Lessons Learned:** By improving pediatric residents' communication skills and providing frameworks for difficult discussions, this multimodality curriculum strengthens pediatricians in their efforts to protect and promote children's health in the modern post-vaccination era.

**References:**

1) Taylor B, Miller E, Farrington C, et al. Autism and measles, mumps, and rubella vaccine: no epidemiological evidence for a causal association. Lancet.1999;353:2026- 2029.
2) Vaccination rates are up in California, but pockets of resistance still threaten everyone. Los Angeles Times. Los Angeles Times; 2017 [cited 2018Jul5]. Available from: http://www.latimes.com/opinion/editorials/la-ed-vaccination-gaps-troubling-20170814-sto
3) Sarnquist C, Sawyer M, Calvin K, et al. Communicating about vaccines and vaccine safety: what are medical residents learning and what do they want to learn? J Public Health Manag Pract. 2013;19(1):40–46.

**A Child Poverty Curriculum Through Digital Storytelling**

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**Idea/Problem Statement:** Presentation of a child poverty curriculum through digital storytelling to enhance resident knowledge, interest, comfort, and engagement in the topic.

**Need/Rationale:** The negative effects of childhood poverty on health and psychosocial outcomes are increasingly incorporated into the core competencies of pediatric residency training. As most pediatric trainees lack a personal history of poverty, they may have difficulty connecting with the experiences of low-income patients, resulting in a higher likelihood of unmet needs. Although the Academic Pediatric Association (APA) has developed a comprehensive curriculum on child poverty in the United States, it is inconsistently instituted in pediatric residency programs due to its length and complexity. Digital storytelling has emerged as a powerful educational platform that can provide an engaging introduction to new content, promoting social connection and personal reflection, while helping residents better connect with the needs of their patients. Children's Hospital Los Angeles (CHLA) is a safety net hospital that serves a large population of children living in poverty or near-poverty; however, residents are only offered a 2-week introduction to advocacy during their intern year, and three additional advocacy lectures throughout each year. Content of these lectures focus on community resources and legislative advocacy. As there is no formal advocacy education in the inpatient setting, the proposed curriculum will offer first year pediatric residents on an inpatient rotation the opportunity to improve knowledge and enhance engagement in the topic of child poverty.

**Methods:** A prospective, randomized controlled trial of a novel digital storytelling curriculum addressing selected goals and objectives of the APA curriculum will be implemented. Content includes current levels of child and family poverty, the impact of social determinants on health, culturally sensitive screening for indicators of poverty, and introduction of government assistance programs. Prior to initiation of the study, participants will complete a survey investigating demographic information, previous advocacy experiences, personal history of hardship, screening behaviors, attitude and comfort with the topic of child poverty, and a 10-item knowledge test. Face validity of the knowledge test was assessed by pediatricians with expertise in child poverty, and questions were piloted with hospitalists and residents to determine item quality and difficulty. The control curriculum includes 10 impersonal, direct prose text messages. The experimental curriculum includes ten 2-5 minute videos delivered via text message, in which digital storytelling introduces the same content through a progressive disclosure narrative following a child and his family. After each message, participants are offered a link to "dig deeper" and can review relevant videos, resources, and APA content. After completion of the curriculum and at 3-month follow-up, repeat knowledge tests will be administered, and participants will again be surveyed about their attitudes and practice behaviors around child poverty.

**Evaluation Plan/Results:** The primary outcome is change in resident knowledge at 3-month follow-up, measured using a 10-point knowledge test. Secondary outcomes include resident engagement with educational content, assessed through frequency of accessing "dig deeper" links, self-reported resident practice change, assessed through self-reported frequency of screening for indicators of poverty at 3-month follow-up, and attitude changes toward the topic of child poverty, as evidence by self-reported interest and comfort with this topic. The primary outcome will be measured by a pre- study, post-study, and 3-month follow-up knowledge test. We will use a repeated measures ANOVA to examine change over time and differences in groups simultaneously.

**Potential Impact/Lessons Learned:** Successful implementation of this pilot curriculum may lead to routine incorporation into resident education and expansion to all levels of learner. It may also facilitate ongoing research of digital storytelling with broadening of content to include other important concepts in medical education.

**References:**


1) Chamberlain LJ, Hanson ER, Klass P, Schickedanz A, Ambica, Barnes MM, Berger S, et al. Childhood Poverty and Its Effect on Health and Well-being: Enhancing Training for Learners Across the Medical Education Continuum. Academic Pediatrics. 2016;16(3):S155-
2) O'Toole JK, Burkhardt MC, Solan LG, Vaughn L, Klein MD. Resident confidence addressing social history: is it influenced by availability of social and legal resources? Clinical pediatrics. 2012;51(7):625-631.
3) Briant KJ, Halter A, Marchello N, Escareño M, Thompson B. The power of digital storytelling as a culturally relevant health promotion tool. Health promotion practice. 2016;17(6):793-801.

**Utilizing Digital Nutrition Videos to Help Food Insecure Families Bridge the Gap from Farm to Table**

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**Idea/Problem Statement:** Engaging food insecure families via online nutrition and culinary skills videos to increase cooking confidence and vegetable/whole grain consumption.

**Need/Rationale:** Fewer than 1 in 10 Americans eat the recommended amount of fruits and vegetables (1). Families in low-income neighborhoods are faced with an additional barrier to eating healthy, as they have access to ample fast food sites but few options for purchasing healthier food. Children in food deserts may develop a lifetime preference for cheap, processed, high-calorie foods, and are often paradoxically overweight despite being hungry. Low intake of vegetables and whole grains has been linked to the considerable rise in metabolic diseases in recent times (2). During our 2017 pilot study with 60 food insecure families, we determined that even after eliminating the barrier of access to healthy food by providing home food deliveries, there was only a moderate increase in consumption of vegetables and whole grains. Previous studies have cited key barriers to increased vegetable and whole grain intake as unfamiliarity with cooking these foods, often due to a cultural disconnect, and a perceived lack of time to prepare them (3). Our current intervention aims to address these barriers by familiarizing families with these foods and demonstrating easy ways to prepare them. By creating an online video library, nutrition education becomes more accessible to patients and may help form long-lasting healthy eating habits.

**Methods:** The study subjects are 150 food insecure families seen at UCSF Benioff Children’s Hospital Oakland clinic with children ages 8-17 years old who have been identified as pre- diabetic (HbA1c between 5.7-6.5% or a fasting glucose & gt; 99 mg/dL). Enrollment will begin November 1 and the study will be 12 weeks. The families will receive a weekly delivery box of fresh produce and whole grains from Phat Beets Produce, a CSA-delivery program based in Oakland. The intervention will include weekly text messages to families with links to “how-to” cooking videos corresponding to the ingredients of their CSA delivery box that week. Some of these videos will be specific to the current week’s delivery, while others will be introductory culinary skills videos. Topics will include: “how to cook brown rice and store it for the week”; “which vegetables can be eaten raw vs. which should be cooked”; and “how to determine vegetable servings based on your family size”. These videos will feature minority chefs that work in the local community to more closely match our patient population. They are filmed by the UCSF video production department. By eliminating the discomfort and unfamiliarity of cooking whole gains and vegetables, we hope to make healthy habits feel more accessible to low-income children and their families.

**Evaluation Plan/Results:** At the end of each week, participants will receive a short survey assessing the helpfulness of the previous week’s videos. Participants will be able to provide feedback about the efficacy of the videos in helping them feel more confident in cooking with these ingredients. To date we have recorded seven of the eight anticipated videos to be used. Upon completion of the intervention, participants will also complete a more thorough survey regarding their experience with the videos. The study will evaluate two aspects: the feasibility and utility of the videos, and the changes in anthropometric and lab data and eating behaviors among the participants. Evaluation of this intervention will allow us to deploy an effective nutrition education library for food insecure families to address some of the keys barriers to healthy eating and increase their cooking confidence.

**Potential Impact/Lessons Learned:** Increasing the availability of nutrition education to food insecure families through digital technology helps to address key barriers to healthy eating, and thus has the potential to significantly reduce the prevalence of metabolic diseases and improve health outcomes.

**References:**


1) Moore LV, Thompson FE, Demissie Z. Percentage of youth meeting federal fruit and vegetable intake recommendations, Youth Risk Behavior Surveillance System, United States and 33 states, 2013. Journal of the Academy of Nutrition and Dietetics. 2017;117(4):5
2) Kearney, M., Bradbury, C., Ellahi, B., Hodgson, M., & Thurston, M. (2005). Mainstreaming prevention: prescribing fruit and vegetables as a brief intervention in primary
3) Yeh, M., Ickes, S., Lowenstein, L., Shuval, K., Ammerman, A., Farris, R., & Katz, D. (n.d.). Understanding barriers and facilitators of fruit and vegetable consumption among a diverse multi-ethnic population in the USA. Health promotion international., 23

**Writing for Success – Writing to Publish:**
**Interactive Workshop for Health Professions Education Faculty**

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**Idea/Problem Statement:** This is a hands-on, practical class designed to help faculty write and refine a completed research study/manuscript.

**Need/Rationale:** Journal rejection rates are very high (often 80-90%) (1). One of our authors (CH) is associate editor for the Canadian Medical Education Journal, and has observed that in addition to reasons such as inadequate study design or inappropriate fit for the journal, poor quality of writing is often cited as a reason for rejection. Faculty in health professions education are often required by their institutions to take part in research projects, and to publish the results of their work. Anecdotally, we have heard from numerous faculty members that they lack confidence in their scholarly writing ability, and experience a great deal of stress when required to write/publish, commonly citing challenges such as writer's block, lack of time to write, and fear of rejection. Having a class that provides supportive feedback, interim tasks/deadlines, and the promise of a completed draft manuscript should help a great deal in addressing these roadblocks to writing. Within the University of Alberta, writing support resources exist; however, they are mainly offered by the Faculty of Arts (i.e., not oriented towards science-based articles), and include informal drop-in sessions, or classes designed for students who speak English as a second language. Therefore, we created this class designed to support faculty in the health sciences in their scholarly writing. There are writing courses and workshops available, but most require travel and cost, which may be a deterrent.

**Methods:** We piloted a two-hour workshop on scholarly writing with junior faculty in pediatrics, then with health professions students participating in a summer research program. The workshop was well-received by attendees (per class evaluations). Seeing the need for more such workshops, we developed a longer scholarly writing course, within the Teaching Scholars Program (a faculty development program in the Faculty of Medicine & Dentistry). A literature search revealed that one-time intensive workshops show little long-term improvement in writing skills (2), so we designed the course to take place over six weeks (six two-hour sessions). Participants will be required to have completed a research project, with data to report, before taking the course, and submit an abstract and updated literature review prior to the first session. Each session of the class will include about 30 minutes of didactic instruction, with the remainder of the session as an interactive workshop with feedback from instructors and peers to refine and improve upon participants' writing. Each session will focus on a section of a typical IMRaD-formatted article: 1) introduction and literature review; 2) research question and methods section; 3) results section; 4) discussion section; 5) presentations and review of draft manuscripts; 6) final review of manuscripts and discuss possibility of publication. A maximum of six participants will be enrolled, to allow time for discussion and constructive feedback.

**Evaluation Plan/Results:** We will conduct a course evaluation upon the completion of the course, including evaluation of the instructors/course facilitators. We will analyze initial submission (pre- class) for each assigned manuscript section against the final version (post-class) of each section submitted. In addition, we will determine the number of draft manuscripts completed during the course. Lastly, after ethics approval, we will use the checklists included during the course to evaluate the manuscripts to determine how well each the study participants' manuscripts comply with the writing rules that the faculty were taught.

**Potential Impact/Lessons Learned:** This class is designed to help scholars write and refine a completed research study. Our belief is that faculty at other institutions would also find value in a practical course designed to help them prepare an article to submit for publication.

**References:**


1) https://www.library.ualberta.ca/catalog/11710808
2) Feldon, D.F., et al. (2017). Null effects of boot camps and short-format training for PhD students in life sciences, Proceedings of the National Academy of Science USA, 114(37):9854-9858.
3) Irby D.M., Wilkerson, L., (2008). Teaching when time is limited, British Medical Journal, 336(7640): 384-387.

**Loving and Old Age: The Use of Documentary Film to Teach Elder Safety**

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**Idea/Problem Statement:** Use film to engage students emotionally in the controversies around elder safety.

**Need/Rationale:** According to the most recent US Census, by 2035 older adults (people 65 and over) will outnumber children for the first time in US History. More physicians, whether they specialize in gerontology or not, will need to be trained in how to care for and address the needs of our aging population. A recent intervention studied the use of medical student simulation training to explore barriers to recognition of elder abuse (Fisher et al. J Am Geriatr Soc, 2016). Health care providers must develop strategies for addressing the needs of elder patients who are vulnerable to various forms of exploitation and neglect. Our intervention uses art, specifically an academy award nominated short documentary film; Edith and Eddie, to introduce Year II medical students to the ethical and legal issues that impact elder health and safety. The goal is to help them develop strategies for grappling with the uncertainty and discomfort that arises when a physician has limited information about a given situation and must navigate multiple perspectives – combative family members, legal guardians, lawyers, and cognitively impaired elder adults.

**Methods:** This 2-hour workshop organized by the HEAL (Humanities, Ethics/Economics, Arts, and the Law) committee and Introduction to Clinical Medicine (ICM) course provided a forum for 186 medical students to discuss key issues that may arise in the care of elderly patients. The workshop, which draws together the five tenets of HEAL, uses cinematic arts to introduce students to the role of legal guardianship, the ethics of determining capacity and autonomy, and the role that economics plays in shaping relationships among families and the healthcare system. Students were introduced to the film by an expert in gerontology who identified key issues addressed by the film, especially the tension between elder safety and autonomy. After watching the 29-minute film, students were asked to jot down questions they had and then discuss with a partner. Students were then invited to pose their questions to a panel of experts in law and elder health care. A follow-up email was sent to students addressing the unresolved issues about the film's focus on a particular version of the story. Purpose: To provide a forum for medical students to: 1) Discuss ethical issues raised by the case of Edith and Eddie; autonomy/self-determination, beneficence, non-maleficence, fidelity, justice, conflict of interest; 2) Define legal terms: ward, capacity, guardianship vs. conservatorship; 3) Identify warning signs re: potential threats; 4) List resources to support at-risk elders.

**Evaluation Plan/Results:** 118 students submitted evaluations. They were asked about the value of the workshop content and the degree to which the objectives were met. 78% of students agreed/strongly agreed that the workshop was valuable. 80% agreed/strongly agreed that it met the objectives.

**Potential Impact/Lessons Learned:** Strong evaluations and the students' emotional investment in the film demonstrate its impact. The lively discussion during and after the workshop leads us to believe that other medical schools will benefit from using film to engage students in the controversy surrounding elder safety.

**References:**

1) James M. Fisher MD Matthew P. Rudd MRCPE Richard W. Walker MD Jane Stewart PhD. Training Tomorrow's Doctors to Safeguard the Patients of Today: Using Medical Student Simulation Training to Explore Barriers to Recognition of Elder Abuse, Journal of the American Geriatrics Society.

**Seeing is Believing: Techniques for Designing Effective Data Dashboards**

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**Workshop Description:** This hands-on workshop offers participants an opportunity to apply data visualization principles and techniques to drive decision-making within a simulated academic medical center. Activities will be integrated throughout the session to build participants' analytic tool kit. Practice data will be provided. Participants should be prepared to leverage their design thinking skills and engage their imagination during this gamified experience.

**Rationale:** The emergence of inexpensive enterprise data visualization tools has created new opportunities for medical educators to track, analyze, evaluate, and improve the quality of their institutions' work with data dashboards. While it is easier than ever to create data visualizations, educators must develop their ability to design dashboards that support their users' data-driven decision making (DDDM) in order to make the best use of these new technologies. This workshop will help participants to develop these skills and produce better data dashboards through engagement with best practices from cognitive science, program evaluation, and educational technology.

**Learner Outcome Objectives:** At the end of the session, learners will be able to:
1. Articulate basic data visualization principles;
2. Match visualization types to particular types of data;
3. Create clusters of visualizations appropriate for various data use scenarios;
4. Organize data visualizations in ways that support users' thinking about the data.

**Intended Participants:** This session is intended for participants with beginner-level experience analyzing quantitative data in medical education research. Individuals who hold leadership and support positions within their environments (e.g., program directors, coordinators, assistants, analysts) will benefit from this session.

**Instructional Methods:** A number of different pedagogical approaches will be used throughout the workshop to help participants attain the learning objectives outlined above. Examples include lecture, demonstration, large group discussion, and hands-on activities.

Part 1: Warm-up (5-10 mins);
Part 2: Lecture and Demonstration (20 mins)
- -Why data visualization?
- -Kinds of data visualizations and what they do;
- -Basic principles of visualization from cognitive science;
- -Case Study: Applying visualization principles using the heuristic approach;

Part 3: Small-group, Hands-on Activities (40 mins);
Part 4: Conclusion - Large Group Discussion (20 mins; 4-5 mins/group)

**Present Like a Boss: How to Deliver Better Didactics**

Kim, Albert; Noelker, Joan
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**Workshop Description:** This workshop is designed to help educators develop an approach to technology integration in the classroom. Presenters will share lessons and project ideas used in curricula. From sage on the stage to guide on the side, participants will engage in hands-on activities, gain exposure to a set of cross-platform tools that will cater to the diversity and inclusion of all learning styles. To maximize their experience, it is highly recommended to bring mobile devices that participants use regularly

**Need/Rationale:** This workshop is designed to help educators develop an approach to technology integration in the classroom. Digital devices have changed the dynamics of the classroom and are redefining what teaching and learning look like. Millennials are known for having short attention spans, desiring immediate feedback, loving multimedia, and having a strong desire to be entertained by lectures. These are not negatives nor can they be changed. The workshop is designed to help educators develop a thoughtful and intentional approach to technology integration in the classroom. The workshop will focus on technology integration in three key areas - content delivery, reflection, and assessment. Presenters will share lessons and project ideas used both in the didactic and clinical curricula. From sage on the stage to guide on the side, participants will engage in hands-on activities, gain exposure to a set of cross-platform tools that will cater to the diversity and inclusion of all learning styles. In order to maximize their experience, it is highly recommended to bring any mobile devices that participants use regularly, regardless of whether these are used in a teaching environment.

**Learner Outcome Objectives:** Upon completion of the workshop, participants will be able to:
1. Identify the usefulness of an integrated technology approach to teaching and learning in medical education.
2. Identify digital tools that can enhance teaching and learning strategies in medical education.
3. Apply three new digital tools to their curriculum.
4. Share ideas for how to integrate digital tools into their curriculum.
5. Create a formative assessment using the digital tools presented in the workshop.

**Intended Participants:** Medical Educators

**Methods/Activity Timeline:**
Introduction/Learning Objectives/Overview: 5 minutes
Use of digital tools to enhance curriculum (SEE ONE): 10 minutes
- -Immediate feedback
- -Assessment
- -Content delivery
- -Blended Learning
- -Reflection
- -Discussion
- -Kahoot!
- -SeeSaw

Hands-On Activities (DO ONE)
- Introduce SeeSaw: 5 minutes
- Activity #1 Technology in their programs now?: 10 minutes
  - -WHERE I AM...How are you currently using technology in the classroom?
  - -WHERE I WANT TO GO...What are you hoping to achieve from today's workshop?
- Activity #2/#3/#4: Apply three digital tools: 45 minutes (15/each) Groups will rotate through a series of three activities focusing on the use and integration of appropriate application of digital tools.
  a) Content Delivery

-Blended Learning with Nearpod;
-Create a 5 slide Nearpod using one of their review/cases/lectures

b) Assessment
-Immediate Feedback with Kahoot!
-partner and work together to create a didactic and a clinical skills MCQ with 4 distractors
-input MCQ and answer choices into Kahoot!
-run a Kahoot! for all participants

c) Reflection - Discussion - Assessment with SeeSaw
-Create and respond to posts: Who I am, Where I teach, 3-2-1 Bridge about Technology In medical education, what digital tools will they integrate into their curriculum?

Large Group Discussion - Debriefing/Q and A: 10 minutes
Commitment to Act (TEACH ONE): 5 minutes
-Post onto SeeSaw
-I used to think...
-Now I think...
-So I will...
Conclusion/End

**Developing Transparent Thinking Approach (TTA) -Based Medical Enhanced Ebooks (MEEB's)**

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**Workshop Description:** Transparent Thinking Approach (TTA) is a newly developed value-engrained and thinking-based educational reform approach. It is generic and unique features enable it to easily diffuse in all domains. In this TTA workshop session, the real "fruits" of this new approach will be "tasted" by "feeling" the innovative TTA created harmony between depth, meaningfulness, connectedness and simplicity which is reflected in the practical application of TTA concepts, tools, perspectives.

**Need/Rationale:** The health care system in the United States faces tremendous problems that are increasingly becoming more urgent, and if not addressed soon, will lead to further degradation of the health care system. Problems like increasing costs of healthcare, high drug costs, increasing uninsured Americans. America has the most expensive healthcare system in the world, paying approximately 20% of its GDP on healthcare, and yet not meeting the highest standers nor insuring its population. These problems can all be traced down to the quality of medical education and the way we teach our future doctors. The current model of education is not producing professionals equipped to take on the challenges that we face. If we wish to solve our problems, we must attack the issue form the roots. There is an increasing awareness that the traditional route taken in education is killing the creativity and the problem-solving ability of students.

**Intended Participants:** Medical professors, instructors, lecturers, teachers and students in medical institutions.

**Workshop Methods:** In this Medical Enhanced Ebook (MEEB) Workshop, TTA generic and micro level solution will be introduced with the following interactive features:

1. Creating a Living Example of TTA instructional Material: Implementing Seeds-Roots-Branches-Fruits (SRBF) Instructional Design Framework in designing the "growth" of the enhanced TTA workshop activities;
2. Specifying the starting and end points: Declaring the main theme of the enhanced workshop as the conversion of a traditional Instructional material (Starting Point) to TTA-Based Form (End Point);
3. "Connecting the Dots" between the start and the end by devising a Highly Structured and Graphically Visible Agenda that forms a complete "jig saw puzzle" picture of the whole workshop (Pieces serving whole). The connection between the dots will be accomplished through the four SRBF framework stages:
    a. Seeds Activities: "Minds-on" Activities that help the participant to "taste" the TTA way of thinking (New perspective on Thinking);
    b. Roots Activities: "Hands-on" Activities that bridge the gap between the physical and the abstract through TTA Maneuvering Tools;
    c. Branches Activities: Implementing an extended TTA Modeling Tools (Graphics, Animation, Analogy, Humor, Comics, Concepts Maps, Drama, …etc.) in remodeling the instructional material concepts;
    d. Fruits Activities: Assembling the remodeled activities into a coherent whole of the new TTA-Based Instructional Material.

**Take Home Tools:** The method of delivery of the basic skills in this TTA workshop will be the hand-on and mind-on activity that is structured in an innovated sequence to create a coherent and integrated whole. These activities will be designed to be completed in 90 minutes session. The participant at the end of the workshop will carry with them a real sample of a TTA-based medical instructional material.

**References:**

1) Aliedeh, M. A. and Aliedeh, H. M. (2018b). IME Conference 2018, February 23-24, 2018.
2) Aliedeh, M. A. (2018a). Journal of Higher Education Theory and Practice (JHETP), 18(1), 103-140.
3) Aliedeh, M. A. (2017). JHETP, 17(3). 11-44.

4) Aliedeh, M. A. (2016). JHETP, 16(5), 80-108.
5) Aliedeh, M. A. (2015a). Journal of Higher Education Theory and Practice (JHETP), 15(5), 103-130.
6) Aliedeh, M. A. (2015b). JHETP, 15(6), 113-140.
7) Aliedeh, M. A. (2015c). JHETP, 15(7), 121-142.

**Educational Impact of a Podcast Covering Vitreoretinal Topics: One-Year Survey and Analytics Results**

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**Idea/Problem Statement:** A podcast covering vitreoretinal topics was created for ophthalmology trainees and attendings as a free 'on-the-go' educational resource.

**Need/Rationale:** The podcast—episodic audio content synchronized to digital devices—is a rapidly-growing academic medium. Podcasts combine the written information of a peer- reviewed journal with the intimacy of a human voice, adapting easily to various learning styles, as listeners can learn at their own paces and content is available longitudinally. The term "podcast" was first coined by a British newspaper in 2004, but the concept was present years prior under the term "audioblogging." Since then, podcasts have been developed for attendings, residents, medical students, and nursing students. They have both successfully improved examination scores and generated interest in medical literature. Podcasts are most valuable when freely available, relatively brief, and complement traditional teaching. Straight from the Cutter's Mouth: A Retina Podcast (SFTCM) was created by the authors with the hopes of filling an educational need. SFTCM, provides education catering specifically to vitreoretinal specialists. Since releasing its first episode on November 2, 2016 at http://www.retinapodcast.com, the podcast has gained subscribers worldwide. Approximately one or two episodes are released each week, for a current total of 119 episodes as of July 2018. The present work was designed to analyze the educational impact of the STFCM podcast and to investigate the demographics and preferences of its listeners.

**Methods:** The podcast, website, and blog were hosted at http://www.retinapodcast.com by Squarespace, Inc (New York, NY) which provided analytics on website traffic. Direct podcast listener analytics were taken from the Podtrac (Podtrac, Inc.; Washington, DC) platform. An online survey was created using the Google Forms (Google LLC; Menlo Park, CA) platform. Questions assessed listener demographics, podcast listening habits, blog post viewings, and ideas for future improvement (Appendix 1). Participants were recruited via advertisements in podcast episodes, the SFTCM website, social media outlets, online forum, and direct communication; participation was voluntary and no compensation was given. The survey remained open between November 1, 2017 and December 1, 2017. Statistical analysis included the Kruskal-Wallis H test and Mann- Whitney U test, performed using SPSS software (version 24; SPSS, Inc., Chicago, IL) with $P<.05$ considered statistically significant. IRB approval was not required for this survey-based study. Podcast episodes were designed with four basic formats: interview with an established leader in the field with discussion of their research, journal club style analysis of recently published peer-reviewed articles, round-table discussions of medical or surgical topics using a non-peer reviewed review as the subject of discussion, or coverage of advancement topics such as the residency and fellowship application process.

**Evaluation Plan/Results:** An analytics review and survey of listeners was undertaken to assess the educational impact of the podcast. As of June 2018, listeners made 18,596 unique visits to the website. There were 41,831 unique episode downloads since March 2017 and quarterly downloads increased from 684 in 1Q17 to 11,488 in 2Q18. 102 participants completed the survey, including 82 (80%) men, with 67 (66%) aged between 25-34 years. On a scale of 1 (Disagree) to 5 (Agree), the median (range) agreement was 5 (1-5) for the statement "Podcasts are a useful part of medical education for eye providers" and 4 (1-5) for "Listening to Retina Podcast results in changes in my clinical practice". There were no significant differences in usefulness ratings between podcasts and peer-reviewed journals ($P = .06$), national conferences ($P = .22$), textbooks ($P = .52$), or CME lectures ($P = .16$); podcasts were rating as significantly more useful than CME online courses ($P <.001$) and CME mailed articles/courses ($P <.001$).

**Potential Impact/Lessons Learned:** The results highlight the rapid growth in listenership and the effectiveness of the podcast in improving education and impacting clinical care. Survey results suggest

that podcasting is a valuable form of education, with perceived usefulness comparable to that of traditional media.

**References:**


1) Hirsch JA, Fargen K, Ducruet AF, Tarr RW. JNIS podcasts: the early part of our journey. J Neurointerv Surg 2017;9(2):211-4.
2) Lichtenheld A, Nomura M, Chapin N, et al. Development and Implementation of an Emergency Medicine Podcast for Medical Students: EMIGcast. West J Emerg Med 2015;16(6):877-8.
3) Nwosu AC, Monnery D, Reid VL, Chapman L. Use of podcast technology to facilitate education, communication and dissemination in palliative care: the development of the AmiPal podcast. BMJ Support Palliat Care 2017;7(2):212-7.

**#PHMFellowJC: Engaging Learners in a Discussion of Pediatric Articles through a Twitter Journal Club**

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**Idea/Problem Statement:** To host a monthly Twitter journal club featuring articles relevant to pediatric hospital medicine (PHM).

**Need/Rationale:** The typical goals of journal clubs are disseminating knowledge, especially new research, and teaching trainees how to critically analyze articles. Twitter has become an increasingly popular platform for journal clubs to engage a diverse audience, including physicians, nurses, students, and even patients, who would not be able to easily participate in a traditional in-person format. Several Twitter journal clubs are currently active, including a hospital medicine journal club that includes both internal medicine and pediatrics (#JHMChat), but none specifically target the PHM community. As PHM evolves into a distinct specialty with a broad range of clinical practice models, it is an opportune time to build a social media presence to foster inter-institutional exchange of ideas and collaboration through discussion of current literature. Thus, our focus is on key “take-home” points and current variations at our respective institutions, with the potential for integrating the evidence into practice (e.g., through quality improvement projects). In addition, all Twitter journal clubs so far have generally been founded and managed by attending-level physicians, with only sporadic input from trainees. By taking the initiative to start and run the journal club as current fellows, we hope this will be less intimidating and more encouraging for other trainees to participate.

**Methods:** #PHMFellowJC was launched in September 2018 as a monthly journal club in the format of a Twitter chat. Each 1-hour chat features a specific article chosen by the moderator, with a focus on articles applicable to PHM. Other criteria for topics include potential interest and engagement from other specialties (e.g., pediatric emergency medicine). The moderator develops objectives and 3-4 discussion questions in advance, which are released along with the article to be discussed at least 1 week prior to the journal club date via Twitter. During the chat, questions are released at set intervals to facilitate discussion flow. Chats are held at 9 PM EST to allow for convenient participation across all US time zones. After the initial hour, the chat remains “open” for participation through the following morning, at which point a transcript is generated and posted to Twitter for future reference.

**Evaluation Plan/Results:** After each session, Twitter-based engagement metrics are obtained using the Symplur© Healthcare Hashtag project, including total number of participants and tweets, average tweets/participant, and total number of impressions (i.e., number of times tweets were viewed). Our first #PHMFellowJC garnered over 39,000 impressions, 129 tweets and 15 participants, including several national experts in the field participating in the discussion. In addition to measurement of engagement on a monthly basis, other future evaluations may include a survey of participants to assess their experience. Some journal clubs may also be coordinated with the AAP Section on Hospital Medicine journal club (www.sohmlibrary.org), so it may be possible to assess increased pageviews or other measurements of engagement through their website tracking.

**Potential Impact/Lessons Learned:** We hope #PHMFellowJC will become a model for promoting inter-institutional discussions in PHM as well as between pediatric subspecialties. For example, @PedsICU_JC sought tips and ideas from us before successfully launching their journal club one week after #PHMFellowJC.

**References:**

1) Wray CM, Auerbach AD, Arora VM, The Adoption of an Online Journal Club to Improve Research Dissemination and Social Media Engagement Among Hospitalists. Published online first July 25, 2018.

2) Thomas B, Topf J, Hiremath S, Madariaga H, Lim M, Leon S, Shingada A, Colbert G, Sparks M. NephJC Primer on Twitter Journal Clubs. Version 1.5. www.NephJC.com/Primer

**Don’t Worry, Be Appy! An Intervention to Increase Fellows' Ability to Treat Rare Critical Events**

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**Idea/Problem Statement:** Improving pediatric anesthesia fellow’s ability to manage rare critical events during interactive case conferences that utilize the PediCrisis app.

**Need/Rationale:** Pediatric anesthesiologists must recognize and treat rare events (2). Cognitive aids (CAs) are regularly used for routine processes and may be more important during critical events (1). They improve the performance of complex tasks during time sensitive situations where the cognitive load is high (2, 3). Unfortunately, fellows in pediatric anesthesiology rarely get training in the use of Cognitive Aids. To address this issue, a multi-site curricular intervention has been developed. This project will combine the use of a checklist of rare critical events that was developed by the Society for Pediatric Anesthesia’s Quality and Safety Committee (SPA-Q&SC) with use of the updated Pedicrisis App, a free cognitive aid developed by the Society for Pediatric Anesthesia. In developing the intervention, we have also aligned it with adult learning theory (i.e. to develop mastery students must acquire skills, practice integrating them, and know when to use them (Ambrose, 2011). Our goals include familiarizing participants with the use of cognitive aids (CAs) and the benefits of their use, increasing knowledge about critical events in anesthesia, and increasing their usage of CAs in the perioperative environment.

**Methods:** The intervention will target a total of 24 pediatric anesthesia fellows and will be delivered in bi-weekly sessions over four months utilizing an interactive case conference format. All site facilitators will be provided with faculty development to ensure site-to-site consistency in course administration. A systematic framework for each conference will include the following components: 1) MCQ pretest covering core content from the session; 2) Brief didactic introduction to content; 3) Paired participants will then be guided through four progressive reveal cases highlighting rare critical events; 4) Half of the participants will be instructed to work through cases in the usual way (memory & phone with no app) the other half will be instructed to utilize the Pedicrisis app; 5) A concluding debrief after each case will compare results of memory vs. cognitive aid group emphasizing items overlooked without the aid; 6) To simulate a stressful environment loud distracting music will be played in the background; 7) Overall debrief to reveal and discuss attitudes around the use of cognitive aids as well as relevant systems based practice and interpersonal communication issues; 8) Each session will conclude with an MCQ post-test covering core content from the session.

**Evaluation Plan/Results:** The evaluation will include tracking of the intervention, assessment of quality of the sessions and usefulness of the app, assessment of resident knowledge and confidence, as well as assessment of fellow usage of cognitive aids in their daily practice. Participant learning will be assessed by analysis of the comparison of pre-intervention and post-intervention MCQ exams. A survey assessing participant’s confidence managing these events will precede curriculum implementation. Follow up surveys immediately after the completion of the curriculum and six months after completion will assess perceptions about the utility of the program, attitudes about cognitive aids, and how participants have utilized the app in daily practice and during actual crisis events. Individual sessions will be evaluated by review of follow up surveys for each session.

**Potential Impact/Lessons Learned:** If successful this could provide a model for other specialties thinking about integrating usage of apps into training, as well as those tasked with recognizing and treating rare, potentially catastrophic, events (ED, ICU, EMT, military).

**References:**

1) Clebone, A., Burian, B. K., Watkins, S. C., Galvez, J. A., Lockman, J. L., & Heitmiller, E. S. (2017). The Development and Implementation of Cognitive Aids for Critical Events in Pediatric Anesthesia: The Society for Pediatric Anesthesia Critical Events C
2) Anesth Analg, 124(3), 900-907. doi:10.1213/ane.0000000000001746

3) Marshall, S. D., & Mehra, R. (2014). The effects of a displayed cognitive aid on non-technical skills in a simulated 'can't intubate, can't oxygenate' crisis. Anaesthesia, 69(7), 669-677. doi:10.1111/anae.12601

**Developing Resident Clinical Precepting Skills in the Emergency Department**

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**Idea/Problem Statement:** Third year emergency medicine residents will become more effective clinical instructors using interactive teaching and residents-as-preceptors shifts

**Need/Rationale:** Resident physicians are often responsible for the instruction of junior learners and teaching is an evaluated competency at the GME level. Despite this anticipated role, residents get inconsistent, if any, teaching on clinical instruction with limited assessment for those that do (1). When compared to model residents as teachers (RAT) curricula (2-3), many programs inconsistently incorporate “key” topics. An informal survey completed by leadership revealed that our education rotation lacks instruction on teaching methods as well as any assessment of clinical supervision. We propose revamping the current 3-week education rotation to increase the focus on the resident in their role as clinical preceptor. We will add a guided introduction to teaching skills followed by multiple mentored precepting sessions. These on-the-job sessions will allow targeted and timely feedback to promote behavioral change. Unlike many curricula, these shifts will also allow residents to practice balancing clinical responsibilities and teaching.

**Methods:** This curricular element will be piloted with the 13 PGY3 emergency medicine residents during their 3-week education rotation, with one resident participating each month. During the first week of the rotation residents will independently review selected readings and practice with the three roles of precepting (role model, teacher and supervisor) in the classroom, sim center and emergency room. They will practice watching other preceptor-resident pairs with the rating form that will be used to provide the PGY3s with feedback and assess their teaching. During the subsequent weeks residents will: 1) complete 4 teaching shifts in which they precept two junior learners, either residents or medical students, and are expected to advise on management of patients and provide clinical teaching; 2) be observed directly by education faculty during these shifts; 3) participate in 30-minute post-shift feedback sessions; 4) continue with their guided independent readings and reflection. Junior learners and faculty will be asked to fill out a rating form for the resident after each shift. As a part of their reflections, residents will be asked to record self-assessments and a commitment to act for future precepting during the block and/or in their 4th year. The design is guided by the learning principle that practice paired with targeted feedback leads to significant learning (Ambrose et.al. How Learning Works: Seven Research-Based Principles for Smart Teaching, 2011).

**Evaluation Plan/Results:** The project evaluation includes: 1) tracking; 2) gathering of learner reaction; 3) rating of learner on-the-job performance; 4) review of completion of commitments to act. 1) Material review and shift completion will be tracked by educational faculty. 2) Ongoing feedback sessions and formal completion of a standard end of rotation evaluation will serve to assess learner reaction. 3) Resident learning in clinical instruction will be monitored by observations during the four precepting shifts and completion of a rating form modified from the ALIEM “Teaching Resident Educational Activity Evaluation Form”. Common teaching themes will be extracted from the opened ended portions of the assessment. Behavior changes will be assessed shift to shift. 4) Prior to starting their 4th year, residents will review teaching topics and can modify their commitments to act. Continued evaluation will occur throughout their 4th year preceptor shifts using standard evaluation forms.

**Potential Impact/Lessons Learned:** This curricular element provides a model for incorporating practice and evaluation of resident teaching skills within the clinical setting. If it is effective, it could be utilized to enhance teaching programs at other institutions

**References:**

1) Kaji A, Moorhead JC. Residents as teachers in the emergency department. Ann Emerg Med. 2002; 39(3):316-318.

2) Farrell SE, Pacella C, Egan D, Hogan V, Wang E, Bhatia K, Hobgood CD, SAEM. Resident-as-teachers: a suggested curriculum for emergency medicine. Acad Emerg Med. 2006;13(6):677-9
3) Messman A, Kryzaniak SM, Alden S et al. Recommendations for the development and implementation of a residents as teachers curriculum. Cureus 2018; 10(7): e3053.

**Self-Directed Learning in the 21st Century: Using Online Educational Resources Thoughtfully**

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**Idea/Problem Statement:** Help residents entering EM develop effective skills for the critical use of online educational resources through a multi-modal interactive curriculum.

**Need/Rationale:** In an era of online information overload it is imperative that health professionals develop tools and strategies to thoughtfully seek out, appraise and incorporate online education resources (OERs) as part of their tools for lifelong learning and just-in-time care [1]. Emergency Medicine (EM) residents in the US & Canada already utilize OERs extensively [2]. The ACGME through their core competencies emphasize the importance of effective use of information technology as part of practice-based learning & improvement. To that end, there have been national efforts to provide high-quality OERs to residents as well as to develop methods and tools to evaluate the quality of OERs [3]. However, our literature search did not locate any comprehensive example curricula to guide residents in gaining these skills, and thus there is a need nationally for model curricula to be developed. We also have a local need since at our institution learners do not yet receive any formal instruction in usage of OERs. Our proposed project is intended to fill this gap.

**Methods:** The intervention will focus on the 18 incoming emergency medicine residents at LAC+USC and will take place over four sessions spread across the first two months of residency. The course is a combination of didactic teaching and real-world applications designed to take learners through Bloom's cognitive and affective domains. The first session will focus on the different modalities (e.g. mobile applications, blogs, VR) of OERs and their applicability to the individual learners style. Through self-reflection learners will analyze their current practices around OERs and biases they may already hold. The second session will focus on forming clinical queries to generate online searches using cases that learners have faced early in residency. This session also covers the role of social media in OER discovery and tools to collect, curate and maintain a steady stream of content. The third session will cover characteristics of high-quality OERs and give learners practice employing validated analytic tools that have been developed to critically evaluate OERs. The final session is a team-based exercise where students are given various clinical scenarios and use skills they have gained to guide their problem-solving. After completing the course, residents will have accrued a set of high-quality resources and practical skills around online learning and they will also be better equipped to make credibility decisions about OERs and incorporate them into learning and clinical practice.

**Evaluation Plan/Results:** The evaluation includes four levels: accountability, learner reaction, learning and behavior. To assess accountability, attendance at the course sessions will be mandated as part of new resident curriculum. This will be tracked along with session timing and any changes in how the plan is implemented. Learner reaction will be measured using a standard course evaluation form. Learning will be evaluated based on participation in session activities and out-of-class assignments as well as the final session team-based exercise. Behavior and impact will be assessed in a follow-up survey later in the learners' first year of residency and compared to a control group of residents who did not complete the course.

**Potential Impact/Lessons Learned:** If successful this could provide a model for programs across the country to teach incoming residents and medical students about using OERs for self-directed learning and as part of clinical practice in order to better meet the ACGME core competencies under practice-based learning & improvement.

**References:**

1) Krishnan, K., Thoma, B., Trueger, N. S., Lin, M., & Chan, T. M. (2017). Gestalt assessment of online educational resources may not be sufficiently reliable and consistent. Perspect Med Educ, 6(2), 91-98. doi:10.1007/s40037-017-0343-3

2) Riddell, J., Swaminathan, A., Lee, M., Mohamed, A., Rogers, R., & Rezaie, S. R. (2017). A survey of emergency medicine residents' use of educational podcasts. Western Journal of Emergency Medicine, 18(2), 229
3) Lin, M., Joshi, N., Grock, A., Swaminathan, A., Morley, E. J., Branzetti, J., . . . Yarris, L. M. (2016). Approved Instructional Resources Series: A National Initiative to Identify Quality Emergency Medicine Blog and Podcast Content for Resident Education

**Teaching at the Bedside in the 21st Century**

Cathy Jalali, PhD; Donna Elliott, MD, EdD
*Keck School of Medicine of USC*

**Workshop Description:** Effective bedside teaching requires a combination of clinical, teaching, and leadership skills. Learn how to identify and develop opportunities for bedside teaching that allow you to assess and coach your learners, while optimizing the care for your patients.

**Need/Rationale:** Latest advances in technology as well changes to the trainee's learning environments continue to shift the attention of 21st century clinical teachers and learners further away from the bedside. This interactive workshop explores some of the commonly encountered barriers to bedside teaching as well as practical solutions to enhance its quantity and quality.

**Intended Workshop Participants:**
This session is intended for medical students, residents, fellows, and faculty, who currently work in the clinical setting.

**Learner outcome objectives:** By the end of this session, participants will be able to:
1. Discuss challenges and opportunities for high quality bedside teaching.
2. Develop plans to promote high quality bedside teaching to try at their home institutions.

**Instructional Methods/ content, activities, schedule:**
Introduction to different approaches to bedside teaching (Large group activity- 10 minutes)
Personal experiences with bedside teaching (Small group activity- 15 minutes)
Discussion of institutional, 21st century learners, and faculty challenges and opportunities for high quality bedside teaching (Large-group discussion- 20 minutes)
Development and feedback on plans to address 1-2, 21st-century challenges to bedside teaching to be implemented at participants' home institutions (Individual and small group activities- 30 minutes)
Wrap up/discussion (Large group activity- 15 minutes)

**Innovations in Teaching and Learning with Technology**

Maldonado, Maria; Ramos, Jennifer; Vallejo, Alberto
*Keck School of Medicine of USC Primary Care Physician Assistant Program*

**Workshop Description:** Anxious about presentations? Searching for ways to improve your lecture? The formal lecture is a teachable skill. This workshop will cover mistakes and pitfalls commonly found in didactic presentations while providing strategies to avoid them. Learn how to effectively present your message and actively engage your learner through preparation, storytelling, and slide design. Bring your own computers and presentations to receive feedback from the group.

**Rationale:** The formal lecture is equipped to provide a substantial amount of information to a passive learner. This time-honored technique has withstood much ridicule, famously in “Ferris Bueller’s Day Off” or in the notorious phrase, “Death-by-Powerpoint.” Despite its disadvantages, it is still utilized heavily in many teaching environments and conference settings. This workshop will provide learners the tools to leverage the advantages of this teaching method, actively engage lecture participants, and utilize technology in content delivery. The workshop will focus primarily on powerpoint and keynote presentation formats, but the teaching points could be comparable with other presentation formats/tools as well.

**Learner Outcome Objectives:** By the end of this workshop participants will be able to:
1. Describe how to plan a didactic lecture through storytelling and proper planning
2. Recognize common pitfalls in slide design and devise solutions to avoid them
3. Describe common pitfalls in lecture delivery and devise solutions to excel as a speaker.

**Intended Participants:** IME participants of any training level. Appropriate for novice speakers or those with some speaking/lecturing experience who would like to improve their skills. Participants should bring their own laptops along with one of their personal presentations (may be one they have already delivered, or one that they are currently developing.)

**Activity Timeline:**
0-10: Intro/Examples - Two exemplar presentations on design and storytelling
10-30: Story Arcs - How to plan a lecture, create a story arc, and develop a unifying theme
30-50: Slide Design - Common mistakes made in slide design and how to avoid them. How to leverage technology and multimedia to your advantage
50-60: Delivery - Common mistakes in lecture delivery and how to avoid them.
60-75: Small Group 1 - Divide into small pairs, learners will present 5 minutes of their own lecture, 5-10 minutes to receive feedback from their partner utilizing tools just provided.
75-90: Small Group 2 - Same session as above after trading pairs, using a different presentation from another group member.

**Take Home Tools:** No specific tools. Group will be given presenters’ contact information if specific questions arise after the workshop.

# Presenters' Bios

**Adeel, Firas, MD**
Firas Adeel is a third year resident in Internal Medicine. He has been involved in the development of the quality improvement and patient safety curriculum for both medical students and residents as an intern and now leads the project team.

**Aliedeh, Hashem, BSc**
Hashem M. Aliedeh is a senior medical student studying in the faculty of medicine, Mutah University, Karak, Jordan. He finished the fifth year and started the clinical sixth year. He is interested in medical education, and its potential to change the face of healthcare. He aims for a residency of internal medicine, but is also interested in academics and innovations in healthcare.

**Aliedeh, Mohammad A., PhD**
Mohammad A. Aliedeh is an Assistant Professor in the Department of Chemical Engineering, Mutah University, Karak, Jordan. He completed his PhD at New Mexico State University, Las Cruces, NM, USA, and his undergraduate and master studies at Jordan University of Science and Technology (JUST), Irbid, Jordan. From 1992 to 1994, Aliedeh worked as an operation engineer for Jordan Sulphochemical Company. His research interests include Multi-Phase Flow, Turbulence Modeling, Phosphogypsum Recycling Process, Engineering Education and Thinking-Based Reform. Recently, He developed and published a new educational reform approach that is called Transparent Thinking Approach (TTA).

**Arva, Nicoleta, MD, PhD**
Nicoleta Arva is an Assistant Professor of Pathology at Feinberg School of Medicine, Northwestern University and Pediatric Pathologist at Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL. She received her medical degree from "Gr. T. Popa" University of Medicine in Iasi, Romania and PhD degree in Molecular Biology from City University of New York. The research focus of Arva's doctoral studies was Mdm2 oncoprotein. Afterwards, she trained in pathology as resident at University of Illinois at Chicago, followed by fellowships in general surgical pathology at New York University and in pediatric pathology at Children's Hospital of Philadelphia, University of Pennsylvania. Arva has a strong clinical interest in pediatric gastro-intestinal diseases, congenital cardiac anomalies as well as in pediatric thyroid disorders. She is actively involved in clinical teaching of residents/fellows while rotating in pediatric pathology, and serves as the Director for the Pediatric Pathology Fellowship, pediatric pathology residency rotation at McGaw GME, Feinberg School of Medicine, Northwestern University.

**Asri, Rijul, BS**
Rijul Asri is currently in the first year of his PhD, simultaneously obtaining his Doctorate of Medicine and Doctorate of Philosophy from Rutgers New Jersey Medical School. Prior to beginning this dual degree, he graduated from New York University with a BS in both Chemistry and Neural Science, where he developed a microelectrode capable of capturing acetylcholine fluctuations in nervous tissue. His current research interests focus on the neuroembryological development of synapses, and their association with various behavioral disorders, namely autism spectrum disorder and substance use disorder. His educational pursuits center around curriculum development and design, specifically enhancing clinical continuity throughout all phases of medical school curriculum. As a student pursuing a Distinction in Medical Education, his thesis includes the creation, implementation, and evaluation of a clinical reorientation program for graduate students returning to the medical school component. The program aims to improve clinical skills and patient management for MD/PhD and other dual-degree candidates. Outside of medical education, Rijul is intimately involved with national healthcare policy and legislation through his work with the American Medical Association as the Region Chair for the Medical Student Section. He aims to pursue clinical training in a joint neurology-psychiatry residency program, where he can continue his translational bench-to-bedside research and work in medical policy.

**Astor, Roee, MPH**
Roee L. Astor is a 2019 MPH, MD candidate at Keck School of Medicine of the University of Southern California. He is a current 4th year medical student at USC. Astor has worked with homeless populations

in clinical, research and policy settings over the past eight years and hopes to ultimately practice clinically with homeless patients who have comorbid chronic medical and mental illnesses. He took a one year hiatus between his 3rd and 4th year of medical school at Keck to complete a Master in Public Health with a focus on Health Policy at Harvard in Boston. At Harvard, Astor further worked on a homelessness prevention landscape scan (this work is similar to a literature review; however, it is systematic but not formally scientific as it also includes information from international, national, and local programs with commentary on relevant homelessness prevention programs) as part of a final report with recommendations for the Massachusetts Department of Public Health. In addition to clinical work with homeless patients, Astor hopes to continue to serve as a patient advocate in the future at the policy level, particularly for homeless patients.

**Axelsson, Gustaf, MD**
Carl Gustaf Stefan Axelsson, MD, MPhil, MMSc, is a neurosurgery resident from London, United Kingdom. Axelsson recently completed a Master of Medical Sciences in Medical Education at Harvard University under the supervision of Dr. Phitayakorn, where he developed a novel video-based learning neurosurgery curriculum for medical students at Harvard Medical School and studied the curriculum's effectiveness in terms of improving knowledge and self-efficacy of participating medical students. Axelsson's primary research interests concern the use of novel technology to provide impactful, efficient and effective learning experiences for students and learners of all levels of seniority within the medical and surgical professions. He is passionate about a neuroscience-focused approach to education and believes modern technology can achieve this beyond the traditional, 'brick and mortar,' classroom setting.

**Bahrainwala, Lulua, MD, MS**
Dr. Lulua Bahrainwala describes herself as a "third culture kid." With roots in India, growing up in Bahrain, immigrating to Canada and settling in the USA, she takes pride in being a truly global citizen. Bahrainwala made California her home four years ago, where she loves to hike, swim, and explore different parts of the city. Being an avid world traveler, her top destinations are Turkey, Italy and South Africa. Bahrainwala's dream is to backpack across Australia and New Zealand, exactly like her parents did 30 years ago. Currently working as a resident in Family medicine and on research involving delivering tuberculosis treatment in low resource settings. She enjoys providing preventive and community based management solutions to diseases with high burden on health systems.

**Barnett, William, MS**
William Barnett is the Quality Improvement & Patient Safety Educational Officer for Internal Medicine Residency at the University of Toledo. His approach to clinical quality improvement is focused in utilizing tools and techniques from his background in Lean and Six Sigma. As a certified quality engineer, he possesses a thorough understanding of quality systems, process analysis, and human factors. Previously, Barnett worked for the University of Toledo Medical Center as an analyst in the Quality Management Department. He graduated from Eastern Michigan University with an MS in Quality Management and from the University of Detroit-Mercy with an MA in Financial Economics. Currently, he is a doctoral student in the Research & Measurement program at the University of Toledo.

**Bauedndistel, Tom, MD**
Tom Bauedndistel is the Internal Medicine Residency Program Director at Kaiser Permanente in Oakland, California. He is a former Deputy Editor of the Journal of Hospital Medicine and current co-Editor of the First Aid for the Internal Medicine Boards book, now in its Fourth Edition. Tom received his MD in 1995 from the University of Missouri–Columbia School of Medicine and then completed Internal Medicine Residency and Chief Residency at UCSF. Tom joined the UCSF Hospitalist faculty and received the Floyd C. Rector Jr. Housestaff Teaching Award. He has been formally involved in residency education for over 15 years, initially as the Associate Program Director of the Internal Medicine Residency at California Pacific Medical Center before moving to Kaiser Oakland, where he has been Program Director of the Internal Medicine Residency since 2009. Recently, Bauedndistel spoke at the national conference of the Society of Hospital Medicine, discussing career paths in academic medicine.

**Birkman, Clair, MLIS**
Clair Birkman, MLIS, is the research librarian for the IDEAS Office, in the University of Alberta's Faculty of Medicine & Dentistry. Birkman's background includes providing outreach and education through the National Library of Medicine's Regional Medical Library program, after receiving her MLIS at the University of California, Los Angeles. Since earning her degree, Birkman has shared her knowledge in a number of different positions. At the University of California, San Francisco (UCSF), she served as education liaison to the School of Nursing and Social and Behavioral Sciences. At University of Colorado, Denver, Birkman provided instruction and reference services to community health care providers through the Colorado Area Health Education Center (AHEC). Now at the University of Alberta (UofA), she teaches classes in literature searching skills and patient health information to health sciences students (medicine, nursing and allied health) and participates in research with health sciences faculty. A regular instructor in the Disability Dialogue course, she brings the dual perspectives of educator and mother of a child with significant disabilities.

**Bisk, Dmitry, MD**
Dmitry Bisk is an associate director at the HonorHealth Scottsdale Osborn Family Medicine Residency Program in Scottsdale, Arizona. He completed his undergraduate degree at California Polytechnic State University and received his medical degree from Ross University School of Medicine. After medical school, Dr. Bisk completed his residency training with HonorHealth. Following residency, Dr. Bisk joined the HonorHealth medical group where he practiced comprehensive outpatient medicine and worked on a population health project with skilled nursing facilities to lower lengths of stay. During his employment with the HonorHealth Medical Group, he completed a Faculty Development Fellowship through the University of Arizona. Dr. Bisk transitioned into a full-time Associate Director role in 2017. Currently, Dr. Bisk serves as a member of the Clinical Integration Committee where he performs literature review, synthesizes information and implements evidence-based disease management guidelines for the HonorHealth ACO, which serves over 1,000 physicians. Along with his passion towards medical education and patient-care, he has clinical interests in chronic pain management and opioid stewardship. Dr. Bisk has constructed the curriculum for opioid pain management in addition to the prescribing policies for the residency program. He is also currently working on ACO-wide projects in opioid quality improvement as well as the management of patients with acute low back pain.

**Blair, Rachel, MD**
Rachel Blair is an endocrinology fellow at Brigham and Women's Hospital in Boston, where she also completed her internal medicine residency training. She was a participant in the Scholars in Medical Education track during her residency.

**Blissett, Gabriella, BA, BAC**
Gabriella Blissett is a New York native, second year medical student at the University of Southern California's Keck School of Medicine. Blisset attended Georgetown University where she received a BA in Psychology and History. Blisset's background and interest lays in how to improve or implement new systems within healthcare to optimize treatment, especially for underserved patients. With a concentration in Health, Technology, and Engineering at Keck, Blissett is interested in learning how to harness technology in the context of population health. As a future physician, she hopes to implement these notions into her practice. Gabriella was drawn to begin research at Homeboy Industries because of its unique mission to help a specifically underserved population. Working with the tattoo removal clinic aims to provide patients the opportunity to radically improve their employment and even social outcomes by taking advantage of this service. She hopes that through this important research, she can gain a deeper understanding on how various patient demographics and tattoo characteristics affect the tattoo removal process. Through this research, she and her team hope to make tattoo removal procedures more accessible to vulnerable populations.

**Boucharel, Adria, MD**
Adria Boucharel, MD, Assistant Professor, Department of Anesthesiology, University of Colorado School of Medicine. Boucharel is a pediatric anesthesiologist and clinician educator. Her primary roles are Associate Director of Education for the Children's Hospital of Colorado (CHC) Department of Anesthesiology and Advisory College Program Faculty Advisor for the University of Colorado School of

Medicine. During her years at CHC she has become increasingly involved in department and campus education related activities. She is a member of the Education Committee, as well as the resident and fellow Clinical Competence Committees. She interviews medical students for the Interview Subcommittee and serves as an elected voting member of the School of Medicine's Curriculum Steering Committee. She was actively involved in the medical school's recent LCME review and remains involved with ongoing curriculum reform efforts. Boucharel served as a faculty senator for two years and as Secretary of the Faculty Senate for one year. She facilitates many small group sessions and yearlong courses for medical students, and other health professions students.

**Bull, Ashleigh, BA**
Ashleigh Bull is a second year medical student at the University of Utah School of Medicine. She holds a BA in Biological Chemistry and a BA in Political Science both from Grinnell College. At the University of Utah, she serves as the MS2021 representative on the Educational Technology Subcommittee. She also serves on the AMA-Medical Student Section Committee for Medical Education. Bull's current research includes undergraduate medical education research advised by Gretchen Case, PhD; genetics of early-onset colorectal cancer advised by David Mount, PhD, and Charles Putnam, MD, PhD; and yeast genetics advised by Charles Putnam, MD, PhD.

**Butani, Lavjay, MD**
Dr. Lavjay Butani is a Professor of Pediatrics and a Pediatric Nephrologist. He was the pediatric clerkship director for several years and currently is the Director of Student Development in the Office of Medical Education.

**Cannon, Malin, BA, C-TAGME**
Malin Cannon is the Residency Coordinator for the anesthesia residency program at Riverside University Health System (RUHS) and has been certified for Training Administrators of Graduate Medical Education since 2017. She brings a long history of experience in education, which began in the K-12 public school system and has culminated into graduate medical education. With the coming of age of the single accreditation system she facilitated the RUHS anesthesia residency program make the transition and become the first Osteopathic anesthesia residency program to acquire ACGME initial accreditation.

**Castillo, Erick, MD, MPH**
Dr. Castillo is a third year family medicine resident at Adventist Health, White Memorial Medical Center. While pursuing his career in medicine he has always found it rewarding to go back to the community he grew up in to share his journey and encourage more individuals to pursue their goals. If it was not for strong mentors and individuals supporting his dreams, he might not have found the courage to persevere through all the difficult times on his medical journey. Dr. Castillo is excited and happy to be able to work with the underserved community of Los Angeles and provide quality care to all of his patients. It is exactly what he pictured when he decided to pursue medicine as a career. The goal is not only to provide good quality care to all patients, but also continue to motivate, mentor, and engage future health care providers.

**Chai, Andrea, MD**
Dr. Andrea Chai is a second year Internal Medicine resident at Kaiser Permanente in Oakland, California. She grew up in Cupertino and attended UC Berkeley, receiving her BA in 2012. She ventured out of California for medical school, receiving her MD from the University of Pittsburgh School of Medicine in 2017. Dr. Chai loves being back in the Bay Area and can be found exploring nearby trails and new restaurants in her free time. She plans to pursue a career in primary care.

**Chavez, Ashley, DO**
Ashley Chavez is currently a first year family medicine resident at the Adventist Health White Memorial Family Medicine Residency. Dr. Chavez received her medical education from Touro University College of Osteopathic Medicine-California in 2018. While studying at Touro University-California she was involved with the student run free clinic and completed a global health summer externship. During this externship she was dedicated to community outreach clinics and research on the impact of, Helping Babies Breathe, a health professional educational program aimed at resource-limited areas. Prior to medical

school Dr. Chavez graduated from California State University San Marcos where she studied biochemistry. She is particularly interested in women's health and community medicine. Dr. Chavez believes that building strong relationships with her patients will allow for opportunities to learn about the community's needs and advocate for positive change.

**Chen, Hsuan-hsiu Annie, MD**
Dr. Chen is a second-year pediatric resident at the Children's Hospital Los Angeles. She received her undergraduate degree in Neuroscience from the University of California, Los Angeles and her medical degree from the Keck School of Medicine of the University of Southern California. Her areas of interest include medical education and clinical communication skills. As a medical student, she served as a camp counselor for high school students interested in biology and medicine, piloted a mental health curriculum for inner-city middle school students, and taught gross anatomy to first- and second-year medical students. She plans on pursuing a fellowship in Hospice and Palliative Care after residency, while continuing to cultivate her skills as a teacher and mentor in academic medicine.

**Chen, Jennifer K., MD**
Dr. Jennifer K. Chen, MD is a pediatric hospital medicine fellow at Rady Children's Hospital San Diego. She graduated from the NYU School of Medicine and completed residency at Children's Hospital Los Angeles. She has been interested in medical education ever since her medical school class was the "guinea pig" for a completely new curriculum. Current research interests include care of children with special health care needs, interdisciplinary communication, health literacy, and the role of social media, especially Twitter!

**Chen, Jian, MD**
Jian Chen is a research fellow at the Center of Robotic Simulation and Education (CRSE) at USC Institute of Urology. After finishing his urology residency training in Peking Union Medical College Hospital, Beijing, he came to USC and joined Dr. Andrew Hung's research team. His research interests lay in the robotic surgical performance evaluation, education, and patient outcome prediction. Dr. Chen has several publications on the related subjects, including JAMA Surgery and Journal of Urology. His work in utilizing automated performance metrics to assess surgical performance recently won "Best Poster" at the 2018 American Urological Association Annual Meeting.

**Chu, Francis, MD**
Dr. Chu is the Program Director for the new KPSJFMR program, which recently admitted its inaugural class of residents in July 2018. Dr. Chu earned a Bachelor of Biological Sciences at the University of California, Berkeley and a doctoral degree from the University of California, Davis. After graduating from the KP Riverside FMR, he stayed on as faculty and filled a variety of clinical and teaching roles, receiving additional training in dermatology, obstetrics, pain management, culturally responsive care, communication, advocacy, Balint group and behavioral medicine, with responsibilities on inpatient medicine teaching, clinic precepting and faculty development for Riverside and KP Southern California Regional GME. He served as core faculty and became Assistant Program Director at KP Riverside FMR before taking on the Program Director role at KPSJFMR in 2016. He currently serves as co-chair of the California Academy of Family Physicians (CAFP) California Residency Network, representing FMR Program Directors throughout California at the state level.

**Chung, Brian, BA**
Brian Chung is a second-year medical student at the Keck School of Medicine of USC. He utilized the Keck Online Learning Initiative (KOLI)'s content extensively throughout his first year of medical school, going on to serve as both a first-year representative and a content creator for the KOLI program. He graduated from Duke University in 2016 with a BS in Chemistry and a minor in Biology. As an undergraduate, Chung worked as a tutor in organic chemistry, served as a math and English teacher in the Philippines, and volunteered as a GED tutor at the Durham Literacy Center.

**Clare, Camille, MD, MPH, CPE, FACOG**
Camille A. Clare, MD, MPH, CPE, FACOG is Associate Professor of Obstetrics and Gynecology at New York Medical College. Dr. Clare is a board-certified obstetrician and gynecologist, and attending

physician at New York City Health + Hospitals/Metropolitan in Manhattan, New York. Dr. Clare received her medical degree from the Albert Einstein College of Medicine, Bronx, New York, and completed her obstetrics and gynecology residency at the State University of New York at Buffalo. Dr. Clare obtained a Master of Public Health in Health Policy and Management at New York Medical College. Dr. Clare serves as the Director of Resident Research in her department. Presently, she is the Associate Dean of Diversity and Inclusion at New York Medical College. Dr. Clare has received numerous teaching awards from the New York Medical College Department of Obstetrics and Gynecology and in 2012, received the Association of Professors of Gynecology and Obstetrics Excellence in Teaching award. In May 2018, Dr. Clare was inducted into the Alpha Omega Alpha Honor Society, Iota Chapter, New York, New York Medical College as a Faculty member.

**Cohen, Landon, MS**
Landon Cohen is currently a first year medical student at Keck School of Medicine of USC. Before entering medical school, Cohen earned his Bachelor's degree (Health Promotion and Disease Prevention) and Master's degree (Global Medicine) at USC. As an undergraduate and Master's student, Cohen has always had a strong interest in the field of Global Medicine, and has published research following a healthcare immersion program in Malaysia. As an aspiring physician, Cohen hopes to make a positive impact on people's health at the individual, community, and global levels.

**Collins, Jolene, MD, MACM**
Jolene Collins is an Assistant Professor of Clinical Pediatrics at Children’s Hospital Los Angeles and the Keck School of Medicine of USC. She received her medical degree from the University of California, San Francisco and completed her pediatric training at Children’s Hospital Oakland. She received her MACM degree from the Keck School of Medicine in December 2017. She is the Medical Director of Community Clinics and works as a general outpatient pediatrician dividing practice time between an FQHC in East LA, serving primarily publicly insured patients and the General Pediatrics Clinic at CHLA. She teaches at the medical school and serves as an Education Track Member for CHLA. Her primary research interest is in curriculum development in the community, outpatient settings and widening the pipeline to develop more physicians who go on to work in underserved areas and improve healthcare inequities. She is currently a member of the Division of General Pediatrics’ Education Committee working to increase scholarly work in the area of medical education.

**Dakroub, Allie, MD**
Allie Dakroub is currently a General Internal Medicine/Pediatrics Fellow at the University of Pittsburgh. He recently completed his Internal Medicine/Pediatrics fellowship at Wayne State University/Detroit Medical Center, where he served as an Assistant Professor in Internal Medicine and Pediatrics for 1 year prior to starting his fellowship. Dakroub has a strong interest in gaming in medical education and is currently a Masters in Medical Education candidate at the University of Pittsburgh, expected May 2020. His thesis and research revolves around gaming in medical education. Most recently, he has worked to create and study a year-long intervention in medical gaming "the Cohort Cup" at WSU/DMC and is in the process of submitting manuscripts regarding the positive effects and outcomes of such gaming in Medical Education. Dakroub is designing a pediatrics gaming curriculum for the Children's Hospital of Pittsburgh, Pediatrics Department. He has been leading educational games for years and is excited at the opportunity to potentially help lead a workshop on his passion in medical education.

**Dang-Vu, Milan, MD**
Dr. Milan Dang-Vu is a third-year anesthesia resident at Naval Medical Center, San Diego. Born and raised in Vietnam, Dr. Dang-Vu left Vietnam as a second-year medical student and migrated to San Diego with her parents and two siblings in 2000. She then restarted her education at San Diego Miramar College where she earned an associate’s degree and transferred to University of California, San Diego for a bachelor’s degree in Human Biology and subsequently, Doctor of Medicine. Dr. Dang-Vu joined the United States Navy right before medical school and has been serving since 2013. After completing her internship at Naval Medical Center, Portsmouth, she went on to complete flight surgery training in Pensacola, Florida and served as a flight surgeon at the Marine Corps Air Station in Iwakuni, Japan prior to returning to anesthesia residency in 2016. Dr. Dang-Vu is interested in promoting physician wellness. With the support of her residency program director, she initiated a project to promote resident wellbeing

and prevent burnout through emotional intelligence training. Her other passion includes humanitarian work, evidenced by multiple missions to developing countries including Mexico, Guyana, and Vietnam. She was awarded one of the resident international anesthesia scholarships by the American Society of Anesthesiologists Global Humanitarian Outreach, in which she will serve as a resident at the CURE Children's Hospital of Uganda in March 2019.

**Davila-Cervantes, Andrea, MD**
Andrea Davila-Cervantes, MD, is a graduate of the National Autonomous University of Mexico (UNAM). Dr. Davila-Cervantes trained in general surgery at the National Institute of Medical Sciences and Nutrition Salvador Zubiran and completed a one-year fellowship in endocrine and laparoscopic surgery. She then joined the faculty at UNAM and subsequently became the general coordinator of the Simulation Center. In 2010, she was appointed chair of the department of Integration of the Medical Sciences at the Faculty of Medicine at UNAM. Dr. Davila-Cervantes completed the Medical Education and Research fellowship at the Foundation for Advancement of International Medical Education and Research (FAIMER) in 2011. In 2012, she moved to Edmonton, joined the University of Alberta and served as a medical education specialist for the MD Program. Dr. Davila-Cervantes was recruited as a research associate at the Faculty of Medicine & Dentistry's IDEAS Office in 2017. She is currently enrolled in the Master of Education in Health Sciences Education Program from the Department of Educational Psychology at the University of Alberta.

**Davila, Oscar L., MD, MPH**
Oscar L. Davila is a third year Family Medicine resident at Adventist Health White Memorial in Los Angeles, CA. Raised in California's Central Valley, he is a first-generation immigrant and first in his family to pursue higher education. His interests include childhood obesity and preventative medicine. Davila pursued his undergraduate education at UC Berkeley, completed his Master of Public Health degree at CSU Long Beach and attended medical school at UC Irvine, where he was a part of UC Irvine School of Medicine's Medical Education for the Latino Community (PRIME-LC).

**Davis, Mark, PhD**
Mark E. Davis is the Warren and Katharine Schlinger Professor of Chemical Engineering at the California Institute of Technology. Davis is a member of the Comprehensive Cancer Center at the City of Hope and the Jonsson Comprehensive Cancer Center at UCLA, and is the co-director of the USC-Caltech MD-PhD program. He has over 450 scientific publications, two textbooks and over 90 US patents. Professor Davis was the first engineer to win the NSF Alan T. Waterman Award. He was elected in the National Academy of Engineering in 1997, the National Academy of Sciences in 2006 and the National Academy of Medicine in 2011. In 2014, he received the Prince of Asturias Award for Technical and Scientific Research from the King of Spain, and in 2015, he was elected into the National Academy of Inventors. He is the founder of Insert Therapeutics Inc., Calando Pharmaceuticals, Inc., a company that created the first RNAi therapeutic to reach the clinic for treating cancer, and Avidity Biosciences. He is/has been a member of the scientific advisory boards of Symyx (Nasdaq: SMMX), Alnylam (Nasdaq: ALNY) and Intellia Therapeutics (Nasdaq: NTLA).

**Deller, Rachel, BSC, MSc**
Rachel Deller is a final year graduate entry medical student currently studying at Swansea University Medical School. She received a BSc honors degree in Biology in 2009 and went on to complete an MSc in Medical Anthropology at Durham University in 2010. She is interested in paediatric medicine and medical education. She is hoping to combine these interests into her future medical career.

**Deutsch, Loren, MA, Med**
Loren Deutsch is a licensed clinical social worker and educational therapist. She has specialized in medical education for 25 years and founded Loren Academic Services, Inc. (LAS) in 2010. LAS is an educational services company that provides academic support using a neuro/bio/psycho/social framework. Deutsch consults to UME and GME programs and is currently working at the University of Chicago, Pritzker School of Medicine and Northwestern University, Feinberg School of Medicine. She provides support to students and residents through inclusion and removing the stigma associated with learning challenges and mental health conditions in medical education.

**Diez, Caroline, BA, C-TAGME**
Caroline Diez is a proud graduate of the College of Charleston and successfully pursued her TAGME certification in 2016. She previously served as the Neurosurgery Residency Coordinator at the Medical University of South Carolina before being recruited to Grand Strand Medical Center in 2016 to help establish the Transitional Year Residency Program. Caroline previously served as the Neurology Clerkship Coordinator for third year medical students at the Medical University of South Carolina, where she was a recipient of the American Academy of Neurology's national Clerkship Coordinator Recognition Award. She also serves as the Chair for the Council for Program Administrations and Coordinator's (AHME) and serves on the Association for Hospital Medical Education's (AHME) Board of Directors. She has lead multiple national and regional graduate medical education workshops, presented national award-winning abstracts and authored several peer-reviewed publications.

**Dopp, Austin, BA**
Austin Dopp is a second-year medical student at the Medical College of Wisconsin. Dopp is originally from Idaho Falls, Idaho and graduated with Honors from Utah State University, where he received his Bachelor of Arts in Family, Consumer, and Human Development with a minor in Chemistry. His current research endeavors include studying how the medical education system affects character, ways to improve medical education through virtual platforms and the effects of light on endothelial cells. He is currently planning on choosing orthopedic surgery as a future specialty.

**Dosman, Cara, MD**
Cara F. Dosman, MD, FRCP(C), is a Developmental Pediatrician and Associate Professor at the University of Alberta and works at the Glenrose Rehabilitation Hospital, where she sees children for diagnosis and treatment of complex developmental-behavioural disorders. She is the team lead for developing and implementing a novel curriculum for training pediatric residents in developmental screening and anticipatory guidance (parenting strategies to promote child development). Dosman has published related clinical teaching tools.

**Earl, Thomas B., MD**
Thomas B Earl is a clinical lecturer and surgical innovation fellow at Barts and The Royal London School of Medicine and Dentistry. He has worked with Professor Shafi Ahmed to embed the Barts X Digital Medicine course into the undergraduate curriculum to educate and empower medical students by introducing them to digital health.

**Echaniz, Marisa, MD**
Marisa Echaniz is an academic hospitalist and co-director of the Nocturnalist Service. She is a quintessential night owl, and loves Red Eye Rounds – finding it a quick, efficient and high yield method of giving educational value to the night shift.

**Elliott, Donna D., MD, EdD**
Dr. Donna D. Elliott is a Professor of Clinical Pediatrics, Educational Scholar, Vice Dean for Educational Affairs and Chair of the Department of Medical Education at the Keck School of Medicine of the University of Southern California. Dr. Elliott received her BS, MS, EdD and MD from the University of Southern California. In her role as vice dean, Dr. Elliott oversees and advises the Keck School's dean on all academic areas related to medical student education including admissions, curriculum, educational policy and student affairs. As chair of the Department of Medical Education, Dr. Elliott is responsible for leading faculty members who have expertise in course and program evaluation, curriculum development, faculty development, assessment and evaluation, clinical skills assessment, research design, psychometrics and statistical analysis. Dr. Elliott has received numerous teaching and mentoring awards including the Mellon Award for Excellence in Mentoring and the Excellence in Teaching Award both from the University of Southern California. She was also named a Master Teacher at the Keck School of Medicine and elected a faculty fellow in the USC Center for Excellence in Teaching. Dr. Elliott received the Women Leaders in Medicine Award from the American Medical Student Association and was named a Remarkable Woman of USC. Dr. Elliott served as the AAMC National Chair for the Group on Student Affairs. She is currently a member of the AAMC Advancing Holistic Review Initiative Advisory Committee,

the AAMC Student Surveys Advisory Committee as the GSA Representative, a member of the executive boards of both the National Board of Medical Examiners and the National Resident Match Program.

**Elshal, Hesham, PhD**
Hesham Elshal graduated from Alexandria University, Egypt, and has worked as professor of Pediatrics in Suez Canal University, Egypt, which has revolutionary role in the field of medical education. Suez Canal University was the first University in Egypt to establish student centered, community oriented teaching. Elshal is currently a Professor of Pediatrics at Beirut Arab University, Lebanon. He is interested in the field of medical education and pioneering the field of computer based testing as a model to improve both assessment validity and educational outcome. Elshal has completed research in the field of Pediatrics, specifically in neonatal perinatal asphyxia and neonatal sepsis and has many publications in national and international journals.

**Frank, Kay, EdD Doctoral Candidate**
Kay E. Frank, MPA, has been with SUNY Upstate Medical University for 28 years. For 17 years, she has held the positions of Fellowship Administrator and Director of Geriatric Education. Currently, she is an Administrator and Research Evaluator in the Department of Medicine's "Transforming Clinical Practice," a statewide network project focusing on "value of care," as well as co-chair of the "Family and Resident (FAR)" initiative, a graduate education wellness program that addresses acclimation and cultural challenges in medical education at SUNY Upstate Medical University. She received her Bachelor of Arts in Political Science, Master of Public Administration and is currently working on her EdD dissertation for her doctorate from the Graduate School of Education at SUNY Binghamton. Her dissertation is titled, "Health Literacy ~ Can You Hear Me: A critical reflection of healthcare communications and rule of understanding between resident physicians and their patients." Her dissertation will focus on patient-doctor communications, physician/patient relationship and creative standardized patient learning modules. In addition, Frank has been a curriculum leader and instructor at Keuka and Cazenovia Colleges. Her interests are in communication studies, ethnography and healthcare education. She embraces and supports student learning through creative, interactive curriculums.

**Fung, Cha-Chi, PhD**
Dr. Fung is the Vice-Chair of the Department of Medical Education and Assistant Dean of Educational Affairs at Keck School of Medicine of USC. She received her Ph.D. in Educational Psychology from USC in 2003. After completing fellowships in Medical Education and educational leadership, Dr. Fung was recruited as an Assistant Professor in Family Medicine at UCLA and has been in the field of Medical Education since 2001. Her area of expertise lies in the teaching and assessment of clinical performance and clinical reasoning. Dr. Fung is the Chair for the AAMC Western Group on Educational Affairs and a facilitator of the Medical Education Research Certificate (MERC) program sponsored by the AAMC. Currently, she is spearheading the development of the Clinical Assessment Tool aimed at meeting the Competency Based Medical Education assessment standards and with potential to provide evidence for entrustment to the residency programs as part of the Core-Entrustable Professional Activities initiative.

**Ganji, Suma, MS1**
Suma Ganji is a first-year medical student at Paul L. Foster School of Medicine Texas Tech University Health Sciences Center. She has been classically trained in Bharatanatyam, an Indian Classical dance form, for seventeen years and has taught classes in San Antonio for the last five years. At school, Suma is on the physical and nutritional health subcommittee of the Student Life Committee where she facilitates physical activity and healthier eating practices for medical students. As a first year medical student, she has realized how much of a challenge it is to incorporate physical fitness of any form into the busy lifestyle of a healthcare professional in training, and has worked diligently to make that a priority. She also has noticed the need for healthy living in the community of El Paso and has recently helped the downtown area by volunteering to create a community garden at the Annunciation House after visiting there this past summer. Suma aspires to be a pediatrician and advise patients from a young age to develop healthy habits. This research project gives Suma the opportunity to share her love for dance with healthcare professionals while also encouraging them to stay active.

**Gavarre, Eric, MD**
Dr. Eric Gavarre, MD, is a resident physician at Marian Family Medicine Residency. He graduated from New York Med College in 2018.

**Godleski, Linda, MD**
Linda Godleski, MD, is a Professor of Psychiatry at Yale School of Medicine and Director of the National Telemental Health Center for the U.S. Department of Veterans Affairs. Dr. Godleski oversees the VA mission to educate more than 1,600 healthcare professions trainees annually from over 200 academic affiliates as the VA New England Regional Academic Affiliations Lead and Associate Chief of Staff for Education (ACOSE) at VA Connecticut Healthcare System (VACHS). Dr. Godleski also serves as the Director of the National Telemental Health Center for the US Department of Veterans Affairs since 2008, and as the VA Telehealth Services National Lead for Telemental Health since 2002. Under her leadership, the VA has developed a network of telehealth technologies and clinicians who have delivered more than 3,500,000 telemental health encounters over the past decade. Dr. Godleski received her BS degree from Yale, and her MD from the University of Virginia, where she also completed her psychiatry residency. Before coming to Yale in 2004, she was the Associate Chair for Academic Affairs at the University of Louisville, and previously held other faculty positions at Vanderbilt University, the University of Virginia, the University of Hawaii, and the University of Central Florida.

**Gomaa, Nahla, MSc, MD, PhD**
Dr. Nahla Gomaa is an Associate Clinical Professor at the Division of Otolaryngology, Head and Neck Surgery. Her educational research interests include CanMEDs, quality improvement in the health care system and Faculty Development-related research. She is an active member in many national and international societies and associations including the Association for Medical Education in Europe (AMEE) and the Society of Teaching and Learning in Higher Education (STLHE), Canada, in which she actively contributes to the Scholarship of Teaching and Learning subgroups. Other Academic research interests also include innovative educational tools including simulation, blended courses and using different technology in medical education. At the level of Faculty Development Committee [FDC], she is the lead of Surgery, and is an experienced research peer reviewer. Her passion is directed to students-lead projects. She has mentored a number of multi-disciplinary students in these domains. In addition, Dr. Goma has collaborative work with Peter S. Allen Research Centre, Neuroscience Institute and Surgical Simulation Research Lab [SSRL] at the University of Alberta, Canada. She is on the jurisdiction boards for research and educational grants. She believes in innovative medical education, and leading many multidisciplinary projects. On the clinical side, her main researches are funded by a number of grants, with the focus on the hearing and balance research.

**Gomez, Erick, DDS**
Dr. Erick Gomez completed his undergraduate dental training in Guatemala at the University of Francisco Marroquin in 2015. He completed a residency in Advanced Education in General Dentistry at the University of Connecticut, and is currently a first-year resident of the Orofacial Pain and Oral Medicine residency at Herman Ostrow School of Dentistry of USC. His research is focused on the use of 3D printing technology to create anatomically accurate models that will provide a more realistic educational experience for students and dentists who want to obtain additional training on interventional techniques used to treat orofacial pain.

**Gonzalez, Sara, MD**
Dr. Sara Gonzalez is an obstetric anesthesiologist and residency program director at Naval Medical Center San Diego (NMCSD). Dr. Gonzalez graduated from medical school at Wake Forest University School of Medicine under the Navy Health Professional Scholarship Program. She started her active duty career as a transitional intern at NMCSD in 2005. She completed a general medical officer tour with the Marines at Camp Pendleton, CA and deployed to the western Pacific in 2008 with the 11th Marine Expeditionary Unit. She returned to NMCSD in 2008 to complete her anesthesiology residency and then went to Cedars Sinai in 2011 for an obstetric anesthesiology fellowship. Upon returning to NMCSD as staff, she began her work in resident education as the associate residency program director. She deployed to Kandahar, Afghanistan in support of Operation Enduring Freedom in 2013-14. Shortly after her return to NMCSD as staff, she was diagnosed with colorectal cancer. This experience provided her

time to reflect on deployment and life's priorities, helping shape Dr. Gonzalez's interest in mindfulness and wellbeing. As she celebrates three years cancer free, she carries this personal interest to her work with the residency and she is delighted to mentor Dr. Dang-Vu on this incredible project.

**Gordon, Bahareh, MD, MS**
Bahareh Gordon, MD, is an Associate Program Director for the UCLA Pediatric Residency training program and Site Director at Olive View – UCLA Medical Center. She also serves as the Director of the Pediatric Inpatient Ward and the Pediatric Same Day/Urgent Care Clinic at Olive View. Dr. Gordon attended medical school at the George Washington University School of Medicine and Health Sciences and subsequently completed her residency at UCLA, where she served as a Chief Resident.

**Grosteffon, Samantha, MD, PGY-1**
Dr. Samantha Grosteffon currently works as a resident physician with the Department of Psychiatry of Central Michigan University College of Medicine. Dr. Grosteffon's early interest in clinical work and medical sciences led her to a Bachelor of Science in Biomedical Sciences and Women and Gender Studies at Grand Valley State University of Michigan. During this time, her love of teaching drove her to become a tutor for microbiology, chemistry, and biochemistry. Dr. Grosteffon's passion for physical and mental wellbeing - specifically women's health - motivated her work with the Women's Issues Volunteer Corps, as well as her position with Beacon Hill Assisted Living. These endeavors continued until beginning her medical degree with Central Michigan University College of Medicine. During her time as a student, Dr. Grosteffon has continued pursuing her excitement for education by reaching out to and mentoring pre-med students as a Maps liaison for Central Michigan University. Dr. Grosteffon also has deepened her clinical work through publishing case reports within the scope of psychopharmacology.

**Guinn, Kimber Barrett, DO**
Kimber Barrett Guinn received her undergraduate training at Southern Illinois University Edwardsville (SIUE) and her medical degree at A.T. Still University (ATSU) in Kirksville, MO. She was raised in a military family and traveled at a young age. Her family settled in a small town prior to attending SIUE/ATSU. Guinn found herself interested in pediatrics because of a younger sibling with an illness. Guinn was inspired as she watched Pediatricians take care of her sibling, ultimately leading her to pursue a career in medicine. Kimber is currently completing her Pediatric residency program at Mizzou. Her interests include advocacy with the refugee population and improving medical access to care. After residency, Kimber will join Lake Regional Health System in Lake Ozark, MO as an outpatient pediatrician.

**Hallowell, Ronan, EdD, MA**
Ronan Hallowell, EdD, MA is an Assistant Professor of Clinical Medical Education at the Keck School of Medicine of USC. As a member of the Learning Sciences team in the Department of Medical Education at Keck, he works with colleagues to provide a suite of curriculum and instruction services to faculty and administrators that includes instructional design, faculty development and the Keck Next Curriculum Renewal Initiative. He currently serves as a Co-Investigator on a digital health literacy grant funded by the AMA as part of its Accelerating Change in Medical Education initiative. Dr. Hallowell also conducts research on physician professional identity formation, curriculum design and cross-cultural perspectives on medicine. He works with Gehr Center faculty as a co-instructor for the Introduction to Health Policy course for second year MD students in the Professionalism and the Practice of Medicine Program. Dr. Hallowell also teaches in the Learning Design and Technology program at the USC Rossier School of Education. He earned his EdD in Educational Psychology from the University of Southern California, his MA in Philosophy and Religion from the California Institute of Integral Studies and his BA in Economics from Boston College.

**Harlan, Gregory, MD**
Greg Harlan joined the Keck faculty in 2014 as Associate Professor of Clinical Pediatrics and Medical Education. He works clinically at LAC+USC in the Pediatrics department and is the Director of Keck's Introduction to Clinical Medicine course (ICM). Greg's professional interests center on professional identify formation, faculty development, innovative methods to teach teamwork and communication skills, quality improvement, and nutritional knowledge. Greg also oversees the Professionalism and the

Practice of Medicine course at Keck. This course teaches Year I medical students about cultural competency, health advocacy, bioethics, and special and vulnerable populations. Professionalism is the overarching theme of this course, and students engage with faculty and peers around the various challenges to Professionalism they may face as students and eventual physicians.

**Healy, Michael, PhD**
Dr. Michael Healy is a medical education researcher with the Department of Surgery, Massachusetts General Hospital, Harvard Medical School and NEJM Group in Boston, MA. In this role, he is part of a research group investigating the impact of educational technologies in medical education. As a result, Dr. Healy has been involved in presentations and workshops at annual meetings for the Association for Surgical Education, Association of Program Directors in Surgery, Ottawa-ICME Conference, and Stanford Medicine X | ED. Previously, he served as the residency program coordinator in the Department of Surgery at the University of Iowa Hospitals and Clinics in Iowa City, IA. Dr. Healy received a BA in Political Science, a MS in Educational Administration and Policy Studies, and an EdD in Higher Education and Organizational Change.

**Heath, Timothy, MD**
Timothy R. Heath, M.D, is an assistant professor at the Department of Internal Medicine and Program Director University of Texas Rio Grande Valley Doctors Hospital at Renaissance Internal Medicine Program Edinburg, Texas. Heath completed a Bachelor of Science in Microbiology at the University of Florida, Gainesville and went on to earn his doctorate at the University of Texas Medical School. Heath served as chief resident at the University of Florida, Jacksonville. As program director of internal medicine residency program at a new medical school, he hopes to increase clinical research opportunities for residents, fellows, and medical students. The Rio Grande Valley is an area with a large population of Hispanics who have not had the opportunity to benefit from research compared to the non-hispanic population. Heath's aim is to increase scholarship for faculty and learners while bringing the best clinical practices to the community. The University of Texas Rio Grande Valley School of Medicine (UTRGV SOM) is a new institution whose mission is to bring healthcare to the valley by training physicians who will remain in the community and foster innovation in research as well as primary care.

**Henderson-Kendrick, Suzanne, BA**
Sue Henderson-Kendrick has been employed at SUNY Upstate Medical University in the capacity of Director of Graduate Medical Education (GME) for over 25 years. She received her Bachelor of Science from Empire State College in Human Resource Management with a minor in Immigration Studies. She has been a member of various committees to include but not limited to: GME Steering; Engaging Excellence for Residents; Resident Life and Wellness; and the Graduate Medical Education Committee. In addition she has been a member on various medical student committees to include: LCME Committee on Graduate Medical Education and Engaging Excellence Subcommittee on Students. Henderson-Kendrick has presented nationally at the Association of Program Directors in Internal Medicine Program Administrators Workshop, ECFMG Conference and the Annual Residency Program Management Workshop. In 2010 she received the Upstate Medical University Employee of the Year for the campus and in 2015 she received her AAMC GME Leadership Development Certification.

**Herzberger, Kathy, BSN, MS**
Kathy Herzberger is an Instructor of Medical Education at Loma Linda University, where Herzberger is responsible for a variety of clinical skills teaching and assessment activities across all four years of the medical school curriculum. She implements the senior Clinical Skills Enhancement Track, designed to improve senior medical students' clinical skills. In addition, Herzberger is a Standardized Patient trainer, and participates in OSCE case development and implementation for the School of Medicine as well as GME, Nursing, Physician Assistant and Allied Health programs. Herzberger is a member of the Association of Standardized Patient Educators and has given oral and poster presentations at the annual conferences.

**Ho, Michelle, BSE**
Michelle Ho is a third year medical student at Sidney Kimmel Medical College at Thomas Jefferson University. She is on the Executive Board of Physician Executive Leadership (PEL), a student-run and

student-driven organization dedicated to teaching the healthcare knowledge and leadership skills necessary to become well-informed physician leaders and innovators. At SKMC, she is also involved in JeffDESIGN, the first co-curricular design thinking program at a United States medical school. Her research interests include medical education and mentorship. She graduated from the University of Pennsylvania where she majored in bioengineering and anthropology.

**Hodgson Birkman, Carol, MS, PhD**
Carol S. Hodgson (Birkman), MS, PhD, received a Master of Science degree in biochemistry from the University of California, Riverside in 1983 and a doctorate in Education at UCLA in 1990. Before entering the field of medical education, Dr. Hodgson was a researcher in preventive medicine at USC's Keck School of Medicine. In 1992, Dr. Hodgson entered the field of medical education at the UCLA School of Medicine and in 1999 became the Director of the Center for Educational Development & Research. She was recruited to the UCSF in 2000 and served as the Director of the new Office of Educational Research and Development. In 2004, she was named the Associate Dean and Director of the new Office of Educational Development and Research at the University of Colorado Denver (CU Denver), School of Medicine. In 2010, she became the first J Allan Gilbert Chair in Medical Education Research at the University of Alberta (UofA) and in 2017, the founding Director of the IDEAS Office. Her research areas focus on professionalism, cancer education, and improved care for people with disabilities. Dr. Hodgson is an expert in curriculum design, evaluation, educational research, and faculty development. She has considerable experience with curricular change efforts at three medical schools. She has taught in numerous faculty development programs locally, nationally, and internationally. Locally she has co-directed the UCLA, UCSF, CU Denver, and the UofA Teaching Scholars Programs.

**Houlihan, Matthew, DO**
Matthew Houlihan is the Chief Urology Resident at Cook County Health & Hospitals System.

**Hsieh, Eric, MD**
Eric Hsieh is Clinical Associate Professor of Medicine and Vice-Chair, Educational Affairs; and Director of the Residency Program and the Department of Medicine of the Keck School of Medicine of USC. He has published in both the areas of Internal Medicine and Medical Education.

**Huang, Samantha, BS**
Samantha Huang is a second-year medical student at the Keck School of Medicine of USC. She received her bachelor's degree in Biology at UCLA in 2015, where she was involved in tennis, teaching and mental health advocacy leadership. At the Keck School of Medicine, Samantha is the Co-President of the Keck at Homeboy Industries, Plastic Surgery, and Homeless Outreach Partnership for Education and Empowerment (HOPE2) student interest groups. Her experiences as a teacher throughout her undergraduate career, in addition to substitute teaching for the Los Angeles Unified School District, have largely influenced her interest in helping vulnerable populations in Los Angeles County. Hence, she hopes to learn more about and help the communities within Homeboy Industries and HOPE2, namely former gang members and homeless individuals. Samantha's involvement with Homeboy Industries includes teaching health classes and research. She hopes to learn from and help this community by building long lasting relationships between the Keck School of Medicine and Homeboy Industries. With the Homeboy Industries Tattoo Removal research project, she seeks to better understand the societal and medical factors that influence this vulnerable population. She and the research team hope to establish evidence based research that will optimize the tattoo removal process, an essential first step for the individuals' path to recovery and safety.

**Indovina, Kimberly, MD**
Dr. Kim Indovina is an Assistant Professor of Medicine at the University of Colorado School of Medicine and has practiced as an academic hospitalist at Denver Health since 2012. She graduated from the University of Colorado School of Medicine in 2009 and completed her Internal Medicine residency at the University of Minnesota in 2012. Her academic interests include patient experience, physician-patient communication, palliative medicine, fall prevention, interprofessional education, and nighttime resident education.

**Ingraham, Aubrey, MD**
Aubrey Ingraham is an Internal Medicine Residency Assistant Program Director at Kaiser Permanente in Oakland, California. He received his MD in 2002 from Dartmouth Medical School and then completed Internal Medicine Residency at UCSF in 2005. Aubrey joined The Kaiser Permanente Medical Group in 2005 and shortly thereafter become involved in residency leadership. Specific interests include curriculum development and point-of-care ultrasound.

**Ingram, Nicholas, BS**
Nicholas Ingram is a second year medical student at Touro College of Osteopathic Medicine in New York, NY. He earned his Bachelor of Science in Physiology from the University of California, Los Angeles in 2014. He is currently serving on the TouroCOM Curriculum Committee and as President of Sigma Sigma Phi: Psi Chapter, Osteopathic Honors Society.

**Itani, Reem, MD**
Reem Itani is a graduate of the Keck School of Medicine, class of 2015. She completed her residency in Pediatrics at the University of Chicago at Comer Children's Hospital. She is currently the Chief Resident and is going to be a fellow in Hospitalist Medicine.

**Jalali, Cathy, PhD**
Dr. Cathy Jalali is an assistant professor in the Department of Medical Education within the Keck School of Medicine (KSOM) of the University of Southern California. She joined the faculty in 2018 as the Director for Keck Faculty Development Initiative. Over the past two decades, she has served in various roles in undergraduate and graduate medical education settings to support medical student, resident and faculty education and scholarship.

**Kahn, Michael, MD, MAT**
Michael Kahn is an internal medicine resident with a passion for medical education that developed as he transitioned from high school teacher to physician. As a graduate of USC's Rossier School of Education he started his creative pursuits developing digital learning models in his high school classroom both in Los Angeles and then in Virginia. After his time in the classroom, he attended the George Washington University in Washington, DC, where he continued to stay active in curriculum design, serving on his school's curriculum committee during the first year of its new curriculum. He then published a paper on the use of digital curricula to improve clinical skills. As he continues his medical training he is also interested in the intersection of online-based teaching modules and case-based learning for medical students, and the development of lesson plans to systematically improve students' and residents' teaching skills.

**Kanj, Amjad, MD**
Amjad Kanj is a PGY 3 at the Wayne State University/Detroit Medical Center in Detroit, Michigan. Currently, he is one of three co-chairs of the Department of Internal Medicine's Cohort Cup/Board Review committee. He has been working for over a year to help coordinate, create, and implement learning games within the department and has been an integral member of the team. Kanj has a strong interest in Medical Education, and is involved in many aspects of graduate and undergraduate Medical Education at Wayne State University within the Department of Internal Medicine. He is eager to have the opportunity to potentially help co-present a workshop on medical gaming, as he has been working on said project for over a year and has seen, first-hand, the impact it has made on himself, his colleagues, and his residency as a whole.

**Katsufrakis, Peter J., MD, MBA**
Peter J. Katsufrakis is president and CEO of the NBME. Dr. Katsufrakis previously served as senior vice president of Assessment Programs at the NBME and is recognized nationally in the medical education and assessment community, both for his work at the NBME and in past roles advancing professionalism, HIV education, clinical training, and medical education administration. Prior to joining the NBME, Dr. Katsufrakis’s positions included associate dean for student affairs and associate professor of clinical family medicine at the Keck School of Medicine at the University of Southern California, where he received several teaching and outstanding service awards for his work. He has also served as a clinical

associate professor of family and community medicine, at Sidney Kimmel Medical College at Thomas Jefferson University. Dr. Katsufrakis is licensed to practice medicine in Pennsylvania and is a diplomate of the American Board of Family Medicine. He is a member of the American Academy of Family Physicians and has served many organizations as a member, including the International AIDS Society, the American Academy of HIV Medicine, and the Association of American Medical Colleges Group on Student Affairs in many roles on committees and task forces.

**Kaur, Jasleen, MD**
Jasleen Kaur is a PGY 3 in the Department of Internal Medicine at Wayne State University/Detroit Medical Center and currently serves as one of three co-chairs of the "Cohort Cup" Committee/Internal Medicine Board Review Committee. She has always had a strong interest in resident education and development and has been working for over a year on the team that has been creating, implementing, assessing and revising learning games within the department. She was asked by program leadership to co-chair the "Cohort Cup", the WSU/DMC Internal Medicine Residency's departmental longitudinal board review competition. She is very enthusiastic about the demonstrated impacts that gaming has had on her own residency experience and that of her peers and is excited for the chance to potentially co-present a workshop to help peers have the same impact on resident and student education that she has seen first-hand.

**Kazerouni, Kayvan, BS**
Kayvan Kazerouni is a fourth-year medical student at the Keck School of Medicine of USC. He grew up in La Jolla, California and graduated from the University of California at Santa Barbara in 2014 with a BS in Cellular and Developmental Biology. At Keck, Kazerouni has pursued his interest in gross anatomy and medical education by acting as a gross anatomy instructor for the Keck Peer Instructional Program (KPIP) and co-founding the Keck Anatomy Mentorship Program (KAMP) in an effort to supplement the current gross-anatomy curriculum with intimate near-peer tutoring. He spent the Summer of 2016 teaching head and neck anatomy to students at the Herman Ostrow School of Dentistry of USC and worked to overhaul the dental school’s dissection guide in an effort to improve and streamline the course. Kazerouni is applying into the specialty of Cardiothoracic Surgery.

**Khan, Faraz, Medical student**
Faraz Khan is currently a fourth-year medical student completing a dual degree in the MD/MBA program at UC Irvine School of Medicine. He received his bachelor's degrees in Psychobiology and Economics from UCLA. His interests include working with underserved communities as well as research in cardiovascular disease.

**Kim, Albert, MD, MACM**
Albert Kim is currently an Assistant Professor in the Division of Emergency Medicine (EM) at Washington University in Saint Louis (WUSTL). He also serves as an Assistant Residency Director and Director of Residency Recruitment for the EM Residency, and is the Fellowship Director for the EM Fellowship in Education Scholarship. He received his MD at the Northwestern University Feinberg School of Medicine, and completed his EM Residency, including a Chief Resident year, at WUSTL. Following residency he simultaneously created and completed the EM Medical Education Fellowship at WUSTL while completing his Masters of Medical Education at the Keck School of Medicine at the University of Southern California. Clinically, he divides his time at the Emergency Departments at Barnes-Jewish Hospital, Barnes-Jewish West County Hospital, and the Saint Louis Children’s Hospital. His education interests in Graduate Medical Education include Bedside Teaching, Resident-as-Teacher, and Mentorship/Career Planning. Within Undergraduate Medical Education, he serves as the Assistant Faculty Advisor for the EM Interest Group.

**Klesmith, Nathan, BS**
Nathan Klesmith studied Biology and Spanish at St. Norbert College, while working with the college's sports medicine team. His educational interest is in curriculum design. He hopes to become an educator who works with medical students and undergraduates.

**Koehn, Kristin, MD, MACM**
Kristin Koehn is an Associate Professor of Clinical Child Health at the University of Missouri with her clinical practice as a pediatric hospitalist. She received her medical degree from the University of Iowa and completed residency training at the University of Missouri. She received her MACM degree from the Keck School of Medicine in December 2017. She serves on the residency program director team, division director for hospital medicine, and works within diverse areas of the health care system in medical education at all levels, utilization review, and QI/QA teams. Kristin's research interests have also been broad in scope with work in clinical research on bronchiolitis, vaccine delivery, and guideline adherence. Current research activities include community-based participatory research on health delivery, educational research on advocacy curriculum, and QI/best practices work with inpatient asthma management.

**Kourmi, Touraj, MD**
Dr. Touraj Kormi is an assistant professor of medicine at Touro University California, School of Osteopathic Medicine, Department of the Basic Sciences. In addition to teaching human anatomy to the medical and the master students, Dr Kormi is active in teaching ultrasound at the ultrasound lab on the university campus. Dr. Kormi is a plastic and reconstructive surgeon by training and performs reconstructive surgery procedures overseas for the civilian casualties of the war in the Middle East.

**Kuo, Iris, MD candidate**
Iris Kuo is a second-year medical student at WUSM with an interest in improving the way healthcare workers provide care to and understand the lives of patients with different life experiences from their own. Her role in this project involved establishing ranking parameters and rating documents.

**Kyler, Kathryn, MD**
Dr. Kathryn Kyler is a pediatric hospital medicine fellow at Children's Mercy Hospital in Kansas City, MO. She completed medical school at the University of Nebraska Medical Center and residency at Ann & Robert H. Lurie Children's Hospital in Chicago. Her primary research interests involve improvement in safety and outcomes of hospitalized children with obesity. She is also an active child health advocate on social media, including Twitter, which led to the cross-institutional collaboration described in her project.

**Lai, Hollis, PhD**
Dr. Hollis Lai is Associate Professor of the Faculty of Medicine and Dentistry at the University of Alberta. A psychometrician by training, Dr. Lai earned his doctorate in the field of educational psychology at the University of Alberta. His research primarily surrounds the development of the method for automatically generating test questions for medical licensure tests. He has served as the director of assessment and evaluation for the medical school and is currently the Assistant Dean of Education Quality and Accreditation.

**Lee, Rhianna, BA**
Rhianna Lee is a clinical technician and researcher at the Central Coast Biotech Institute in Oxnard, CA. She earned her bachelor's degree in Interdisciplinary Studies from the University of California, Berkeley with a focus in Gender Women's Studies, Rhetoric, and Public Health. Her honors thesis explored the clinical, social, and marketing aspects of the HPV vaccine, Gardasil. She has completed a pre-medical post-baccalaureate from UCLA and is in the process of applying to medical school. She volunteers at Livingston Memorial Hospice and works at the University of Southern California's Interaction Lab as a clinical research coordinator.

**Levine, Diane, MD**
Diane Levine is the Vice Chair of Education and a Professor of Internal Medicine at Wayne State University in Detroit, Michigan. She has a strong interest in Med-Ed and has been involved in a myriad of educational initiatives and many innovations within the department of Internal Medicine in both the Graduate and Undergraduate education realms. She has served as Dr. Dakroub's professional mentor for over 4 years, and served as senior advisor to the current "Cohort Cup" longitudinal game-based curriculum that is currently the board-review paradigm of the WSU/DMC Department of Internal Medicine. She has also worked with Dr. Dakroub to help establish such a gaming paradigm for the

Wayne State University School of Medicine Internal Medicine Clerkship at the Detroit Medical Center. Levine is excited at the potential opportunity to help lead a workshop regarding an innovation that has proven to be so successful at her home institution.

**Lewis, Laura, MD**
Laura Lewis is a third year pediatrics resident at CHLA. The first in her family to go into medicine, her interests center around mentorship. As such, medical education research was a natural extension and she was thrilled to find like-minded co-researchers at her institution. She began mentoring and teaching on an organized level as early as high school, as a part of a medical focus program. She not only recruited and mentored younger members of the focus program, she was a TA in her later high school years. As a history major at UCLA and working at an elementary school after college, she continued mentoring, volunteering with younger students, and teaching. As a medical student at the Keck School of Medicine of USC, she had numerous leadership positions, including president and founder of the USC Medical Mentorship Program. As president of another student organization, "Healthy Choices, Healthy Lives," she both taught high school students and trained other medical students in how to teach—one of her first forays into "near peer teaching." She has some research experience in the fields of orthopedics and ophthalmology as well as quality improvement. This project on medical education is new for Laura, but she already knows she loves it. Laura hopes to go into the field of academic pediatrics as a general pediatrician and help shape future trainees.

**Li, Sarah, OMS-II**
Sarah Li, OMS-II, is a current student at Touro College of Osteopathic Medicine, Harlem. She obtained her Bachelor of Science degree in Biomedical Sciences with a minor in Chemistry from California State University, Sacramento.

**Liu, Alan, MD**
Dr. Alan Liu is an Assistant Professor, Department of Medical Education at Keck School of Medicine of USC and the Assistant Director of the Clinical Skills Education and Evaluation Center. He administers and implements Objective Structured Clinical Examinations (OSCEs) in collaboration with the Introduction to Clinical Medicine course and the core clerkships. He evaluates medical students' performance of core competencies related to patient care and communication skills. He assists in the remediation of clinical skills of the medical students. He recruits and trains standardized patients for both teaching and assessment and monitors their performance for quality assurance. Dr. Liu is an active member of the Trainers' Group in the California Consortium for the Assessment of Clinical Competence. He is also a member of the American Association of Medical Colleges Group on Educational Affairs (AAMC-GEA). Prior to joining KSOM, he was the program physician for USMLE Step Exams review with Kaplan Test Prep.

**Lo, Joan, MD**
Joan Lo is an Assistant Program Director for the Internal Medicine Residency Program and GME Research Director at Kaiser Permanente in Oakland CA. She is also a Research Scientist at the Division of Research, Kaiser Permanente Northern California where her clinical science portfolio focuses on osteoporosis and women's health research. She has been involved in graduate medical education and research mentoring since 2010. As an endocrinologist and educator, she is actively engaged in findings new ways to teach endocrine pathophysiology, including the application of experiential learning techniques and gamification in residency training. When not practicing medicine, mentoring residents or writing grants, she is a Girl Scout mom and enjoys promoting the wellbeing of women physicians.

**Locke, Evan, BS**
Evan Locke is a second-year medical student at the Keck School of Medicine of USC. He graduated from the United States Air Force Academy with a bachelor's degree in biochemistry and is currently attending medical school on an Air Force HPSP scholarship. He will return to active duty Air Force service as an Air Force physician following graduation from medical school and is pursuing a career in primary care. Evan is passionate about community service, patient education, and community health promotion and is thrilled to be able to combine these interests with his enjoyment of teaching and working with kids in this study. Previously, Evan has played a role in planning and executing multiple

youth health education programs at elementary and high schools across the East LA area on a variety of topics including nutrition, exercise, mental health, substance abuse prevention, and depression and suicide. He was excited to build upon the work of one of his Keck colleagues at Bravo Medical Magnet High School in educating students about the importance of sleep, and how to form healthy sleep habits. Evan is very grateful to the Bravo High School administration for their support of this project, and he is also appreciative of his research mentor, Dr. Jo Marie Reilly, for her dedication and unending support.

**Lomiguen, Christine, MD**
Christine Lomiguen, MD, is the course director of General Pathology at Touro College of Osteopathic Medicine - New York (Harlem). She obtained her undergraduate degree in Biomedical Engineering from Rutgers, The State University of New Jersey and her doctorate in medicine from Our Lady of Fatima University College of Medicine. She is currently pursuing her Master of Science in Medical Education at Lake Erie College of Osteopathic Medicine.

**Lopez, Maria Cynthia, MD, FAAFP**
Maria Cynthia S. Lopez is currently a Family Physician and Assistant Clinical Professor at the University of Southern California, Keck School of Medicine, Department of Family Medicine. She is also a core faculty at Adventist Health White Memorial Family Medicine Residency Program where she is the Director of Community Medicine curriculum. Dr. Lopez has been board certified by the American Board of Family Medicine since 1995. She received her medical education from Rosalind Franklin University of Health Sciences/The Chicago Medical School and completed her residency training in family medicine at White Memorial Medical Center. She is particularly interested in community medicine, women's health, maternal/infant care, including obstetric deliveries and colposcopy, and patient health education.

**Magen, Eran, PhD**
Eran Magen, PhD, applies his deep expertise in psychological research, education and relationships to help medical schools and hospitals reduce rates of burnout and suicide, through two programs he created: My MD-to-Be (http://MyMDtoBe.com), which empowers family members to offer stronger support to medical students, and Early Alert (http://EarlyAlert.me), which checks in with medical students and physicians using text messages and offers immediate support resources as needed. Dr. Magen earned his PhD in psychology from Stanford University and completed postdoctoral training in population health as a Robert Wood Johnson Health & Society Scholar. Dr. Magen's work has been published in top-tier peer-reviewed journals including Psychological Science, Emotion, and Academic Pediatrics, as well as in popular outlets such as the Gold Foundation blog. Dr. Magen is grateful to work with such a dedicated, warm, talented and welcoming group of student wellness champions.

**Maldonado, Maria Guadalupe, MPAP, MPH, PA-C**
Maria Guadalupe Maldonado is the co-chair of the Integrative Learning Committee at the University of Southern California PA Program. Guadalupe has given numerous presentations focusing on the use of technology in the classroom at various educational conferences within higher education. In addition, she has conducted workshops on use and implementation of technology into PA education at Physician Assistant Education Association (PAEA), Integrative Learning Committee, past National Health Service Corp Mentor, and previous National Health Service Corp Scholar. After graduating from the USC Keck School of Medicine Primary Care Physician Assistant Program in 2006, she completed service at an FQHC as a family medicine Physician Assistant. Currently, Guadalupe works as a clinical instructor of Family Medicine and a family medicine PA.

**Malik, Zayir, MD**
Zayir Malik is a third year Emergency Medicine resident at the University of Chicago. He was born and raised in a quiet suburb of St. Louis and moved to Atlanta where he completed a BS in Biology and a BA in Spanish at Emory College before staying at Emory University School of Medicine to complete his MD. During residency, Zayir has taken a special interest in education and currently serves as the Chief Resident of Education in residency. He has taken the lead in the formulating a didactic curriculum given by other third year residents, has been involved in the med student clerkship didactics, and is working on a few projects (including this one) that focus on the role of education in pain management in the ED. His research interests include education (specifically how it ties to clinical outcomes), pain management, and

clinical decision-making, among others. Zayir plans to pursue a fellowship in medical education after graduating from residency at the end of this academic year to hone his research and educational abilities.

**Martinez, Mauricio Joel, MD**
Joel Mauricio Martinez is a family medicine physician interested in delivering evidence based care to patients of all socioeconomic strata with a focus on the underserved, Latino population of East Los Angeles.

**Mattson, Peter, BA**
Peter Mattson is an MD ScM 2020 candidate and student body president at the Alpert Medical School of Brown University. He is the founder and executive director of HealthCORE which has now graduated over 50 high school students in Providence. Peter is planning to pursue a career in emergency medicine.

**May, Win, MD, PhD, FRCP**
Dr. Win May is a Professor in the Division of Medical Education, and the Director of the Clinical Skills Education and Evaluation Center at the Keck School of Medicine. She is a Distinguished Faculty Fellow of the USC Center for Excellence in Teaching, and a member of the California Consortium for the Assessment of Clinical Competence. She is a member of the Association of American Medical Colleges (AAMC) Research in Medical Education (RIME) Planning Committee. She served as a member of the United States Medical Licensure Examination (USMLE) Step 2 Clinical Skills Test Material Development Committee for the National Board of Medical Examiners. She served as a member of the Advisory Committee of the AMA Learning Environment Study. She is a Co-Director of the Intersessions Course, teaches in the Introduction to Clinical Medicine (ICM) Program and has been a faculty mentor in the Professionalism and the Practice of Medicine (PPM) course since its inception. She is an instructor in the Masters of Academic Medicine and Faculty Development programs. She has worked collaboratively with the Institute of Creative Technologies to develop a virtual standardized patient. Prior to joining USC in May 2000, Dr. May worked for the World Health Organization (WHO) in Geneva and New Delhi. She was the founding Dean of the Institute of Nursing in Myanmar. Dr. May is a reviewer for medical education journals, and has written journal articles and book chapters in medical and nursing education. Dr. May was awarded an honorary Fellowship from the Royal College of Physicians of London.

**McCauley, Brian, MD, MPH, RCIS**
Brian D. McCauley MD, MPH is an Internal Medicine Resident (PGY-3) in the Clinical Educator Tract at Alpert Medical School, Brown University. He received his bachelor's degree in Science, a Post-Baccalaureate Certificate in Medicine, his Master's Degree in Public Health from Drexel University and attended medical school at Cooper Medical School of Rowan University. Brian started his career with the United States Air Force as an Independent Duty Medical Technician (IDMT) at McGuire AFB and numerous other locations worldwide. Following discharge from active service, he worked as a Technician in the Cardiac Catheterization Lab at the Hospital of the University of Pennsylvania, and a Laboratory Manager/Research Specialist at the Perlman School of Medicine at the University of Pennsylvania. Brian is currently an applicant in the 2018-2019 Cardiology Fellowship season. He is actively involved in several research projects related to the fields of Electrophysiology, Invasive Hemodynamics, Advanced Heart Failure, and cardiovascular medical education. Brian has won numerous awards for his dedication to patient-care, and his passion for teaching. Namely, he is the member of the Gold Humanism Honor Society, recipient of the Leonard Tow Award. As a resident, he received a Chief's award, and was Resident of the Quarter. For his educational efforts, he received the Resident Teaching Award and was acknowledged as a "Positive Champion on the Learning Environment."

**McCauley, Christopher, BS**
Christopher McCauley is a 3rd year medical student at the University of North Carolina School of Medicine. He is interested in medical education, global health and the care of children. He intends to apply to residency in either general surgery or pediatrics.

**McClure, Tiffany, MS-IV**
Tiffany McClure is a fourth year medical student at the David Geffen School of Medicine at UCLA. In medical school she has been a leader of the Pediatrics Interest Group and a medical case manager for Bruin Shelter, a homeless shelter for college students run by students. She is passionate about primary care and is pursuing family medicine. She balances her medical career with an active home life, raising 3 young children ages 7, 3 and 1. Prior to medical school, she worked in investment banking on Wall Street. She received her Bachelor of Science from the University of Pennsylvania, concentrating in Finance and Accounting.

**McCutcheon, Marin, MD, MPH&TM**
Dr. Marin McCutcheon is currently a Chief Resident in Internal Medicine. She received her MD and MPH in Tropical Medicine from Tulane University in New Orleans. She completed her Internal Medicine residency at Olive View - UCLA. She is pursuing a fellowship in pulmonary and critical care. Her professional and research interests include graduate medical education with a focus on curriculum development to reach all learners, and interventions and assistance for struggling residents.

**Millan, Carlos, MD**
Carlos Millan is a PGY-3 at White Memorial Medical Center Family Medicine Residency Program. He attended medical school at Howard University College of Medicine. He is passionate about empowering and working with Latino populations.

**Mojarad, Sarah, MS**
Sarah Mojarad is a lecturer at the University of Southern California with faculty appointments in the Viterbi School of Engineering, Keck School of Medicine, and USC Bridge Institute. She teaches the course, “Social Media for Scientists and Engineers,” and is developing a new program in science communication. At Keck, she teaches in the areas of online professionalism, personal branding, and issues and opportunities in digital healthcare communication. Before joining USC, Mojarad was teaching a digital communication course at California Institute of Technology (Caltech). Mojarad has given seminars and lectures around the world on social media and science communication. She has presented her work to the National Science Board and US Department of State, and the Department of Energy and National Institutes of Health have funded her communication workshops. She is currently developing digital communication curricula for all four years of medical school education.

**Molas-Torreblanca, Kira, DO, FAAP**
Kira Molas-Torreblanca, DO, FAAP, is an Assistant Professor of Clinical Pediatrics at USC and a pediatric hospitalist at Children’s Hospital Los Angeles. She graduated medical school from Western University and completed her post-graduate training and chief residency in pediatrics at the University of Nevada and continued on as faculty with the division of hospital medicine at the medical schools’ primary teaching hospital at the Children’s Hospital of Nevada. Since joining faculty at the Keck School of Medicine (KSOM) in 2011, she has remained involved in medical student education and served as an instructor for the Introduction to Clinical Medicine here at KSOM. Currently she serves as the director of the Professionalism and Practice of Medicine Course here at KSOM and also is the co-Director of the CHLA Pediatric Hospital Medicine Fellowship Program at CHLA. Her interests include curriculum development and quality improvement with regard to transitions of care.

**Moore, Elizabeth M., MD**
Elizabeth Moore, MD, is a PGY4 resident in psychiatry at UCLA-Neuropsychiatric Institute and the West Los Angeles Veterans Administration. Prior to medical school, she worked as an associate at Avalere Health, a health policy consulting firm in Washington, DC. Here, she advised pharmaceutical companies and health systems on the impact of legislation such as the Affordable Care Act and the HITECH Act within the Stimulus bill. During residency, she has focused research efforts on understanding the needs of patients who are homeless. She developed a well-being curriculum for trainees within an interprofessional clinic caring for homeless veterans. As a UCLA Resident Informaticist, she has been working on informatics initiatives designed to help primary care physicians care for mentally ill patients without worsening their workloads. As current Chief of Medical Education, she has worked to improve feedback in medical student education and to help residents develop career interests as clinician

educators. Her current interests include community mental health, physician and trainee well-being and retention in community settings, healthcare informatics, and improving access to mental healthcare through integration with primary care. She graduated from University of Pennsylvania School of Medicine.

**Moser, Joe-Ann, MS**
Joe-Ann Moser is a fourth-year medical student at the Icahn School of Medicine at Mount Sinai. For her research year, she worked with her school's Medical Education Department and Instructional Technology Group on a variety of projects at the intersection of education and technology, including physiology review videos and an online dermatology course. While at Mount Sinai, Joe-Ann has held multiple roles related to teaching and curriculum design, including serving as a peer tutor, teaching assistant, course representative, and teaching seniors at the student-run free clinic. She received a BA in Biochemistry and an MS in Chemistry from the University of Pennsylvania as a member of the Vagelos Program in Molecular Life Sciences. Prior to starting medical school, she worked as a clinical research assistant at the National Institutes of Health.

**Mozeika, Alexander M., PharmD**
Alexander M. Mozeika is currently a third-year candidate in the Doctorate of Medicine program at Rutgers New Jersey Medical School, prior to which he completed his Doctorate of Pharmacy degree at the Rutgers Ernest Mario School of Pharmacy. While at Rutgers NJMS, Mozeika participates as a voting member of the admission committee, giving him insight into the operations of a medical school. He also continues to work in a clinical setting as a pharmacist. Mozeika's educational interests include the revitalization of the transition from basic science to clinical application through the development of novel, evidence-based training and curriculum. To this end, he has spearheaded several programs targeting the abilities of undergraduate medical students to access peer-reviewed guidelines to improve patient care and outcomes. Mozeika is completing his Doctorate of Medicine with a Distinction in Medical Education, producing scholarship around teaching evidence-based pharmacotherapy strategies and around the metacognition of clinical reasoning. His clinical interests include critical care medicine and medical toxicology, with a vested interested in strong patient advocacy and humanism in medicine. He hopes to pursue an internal medicine residency program at an academic institution, where he can continue his work within the field of medical education and mentorship, eventually branching into graduate medical education.

**Murray, Collyn T., MD**
Collyn T Murray, MD, is the current medical education fellow for the Division of Emergency Medicine at the Washington University in Saint Louis School of Medicine. She completed her medical education and residency training in Emergency Medicine at the University of North Carolina at Chapel Hill. She served as chief resident in academics and was an active member of the Academy of Educators. In addition to her current fellowship activities, Murray is a clinical instructor at several sites in the St. Louis area. Within the School of Medicine, she works with junior emergency medicine residents during their education rotation and is a faculty preceptor for the Practice of Medicine course for the undergraduate medical students. She is currently pursuing her Master of Academic Medicine degree through the Keck School of Medicine of USC.

**Neville, Roselyn, BA**
Roselyn Neville is a second year medical student at the University of Utah. She received her BA in Cell and Molecular Biology with a minor in Chemistry from the University of Utah, as well. Neville is interested in quality improvement of clinical medicine, as well as advocacy for patients and providers alike. Besides leadership in LEAP, Neville is also co-President for the Reproductive Health Interest group, the Geriatric Health Interest group, and is a participant in the Professionalism and Diversity Committee. She also enjoys tutoring first year medical students through the Academic Success Program. Neville performed research in the MSTAR program for students interested in research on aging. She is currently finishing analysis on how a history of heavy drinking affects cognition in older adults. She is also currently working to create a student-run clinic for geriatric patients at the VA in Salt Lake City.

**Nguyen, Amy, MSOT/S**
Amy Nguyen is a second-year occupational therapy student at WUSM studying the intersection of disability and the refugee experience. She is interested in community development and addressing health disparities.

**Ninan, David, DO**
Dr. David Ninan is a certified physician executive by the American Association of Physician Leadership. In 2009, he developed a Career, Business, and Leadership course to prepare new physicians for their new roles after graduation. In 2017, due to institutional demand the program expanded to include other post-graduate training programs at RUHS. He is the current Chair and Program Director for the residency program in the Department of Anesthesiology at Riverside University Health System (RUHS) and Clinical Associate Professor at Western University of Health Sciences (WUHS). He has significant leadership, administrative, and business experience including his role as medical director of perioperative services and chief of staff elect at RUHS. Outside of his health system, he is the treasurer for the American Osteopathic College of Anesthesiologists and serves on the executive board of a local nonprofit.

**Noelker, Joan, MD, MACM**
Joan Noelker is currently an Assistant Professor and Assistant Residency Program Director in the Division of Emergency Medicine (EM) at Washington University (Wash U). She has an MD from the Royal College of Surgeons in Ireland and a Masters of Medical Education from the Keck School of Medicine of the University of Southern California. She is a St. Louis native and returned to the area after medical school to complete residency training, including a chief resident year, followed by a medical education fellowship at Wash U. She works clinically in the emergency departments at Barnes-Jewish Hospital, Children's Hospital and Barnes-Jewish West County Hospital, and her non-clinical time is divided between administrative work within the EM residency, teaching and mentoring residents and medical students, curriculum development and educational research. Additionally, she is a member of two curriculum committees within the medical school and a member of the advisory board for the new Teaching Scholars Program at Wash U. Dr. Noelker has interests in simulation in medical education, transitions within medical education, undergraduate and graduate level medical education and dissemination of EM core knowledge through speaking engagements. She has received multiple local teaching awards over the past several years, a national award by the American College of Emergency Physicians (ACEP) for public speaking in 2016, and a national teaching award through ACEP in 2018.

**Nyquist, Julie G., PhD**
Julie G. Nyquist, PhD, is a professor in the Department of Medical Education within the Keck School of Medicine (KSOM) of the University of Southern California. She directs the Master of Academic Medicine (MACM) program and is chair of the department's annual Innovations in Medical Education Conference for 2014-present. Dr. Nyquist joined the faculty in 1981, served as program evaluator for the Medical Student curriculum (1981-2014) and is currently co-chair of the school's Competency-Based Medical Education initiative. Within KSOM she has served on most of the curriculum committees and was a member of the central Education Committee for the school for 20 years (1993-2013). With the MACM program Dr. Nyquist is part of teams that teach professional development, learning principles, curriculum design, evaluation, professionalism, culturally responsive health care, and leadership (of self and others). Dr. Nyquist has developed and delivered over 750 workshops and presentations on topics related to learning principles, teaching, evaluation, ACGME competencies, curriculum development, motivation, scholarship, leadership and team development to a variety of health care professions' faculty members.

**O'Connor, Kevin, MD**
Kevin O'Connor is a third-year resident physician in the Department of Neurology at the University of Kentucky in Lexington, Kentucky. O'Connor received his medical degree from the Indiana University School of Medicine in 2016. During his residency, O'Connor has worked closely with the Department of Neurology to promote wellness and resiliency among trainees. O'Connor is part of the UK Graduate Medical Education committee, House Staff Council, and Wellness-in-Training committee.

**Ogunyemi, Dotun, MD**
Dotun Ogunyemi, MD, is the associate dean of Faculty Affairs and Cultural Diversity at the California University of Science and Medicine. Previously, he served at the David Geffen School of Medicine for over 13 years, was on the Medical Education Curriculum committee, served as the vice chair of the Students Thesis program and became the faculty advisor for the Center of Educational Development and Research. At Cedars Sinai Medical Center he was the vice-chair of education in the Department of OBGYN and was responsible for CME and faculty development. At Beaumont Health, Michigan, Ogunyemi served as systems vice chair for the Department of OBGYN and facilitated the implementation of faculty development processes such as TeamSTEPPS and simulation training. He also started and served as program director of the ACME Maternal Fetal Medicine Fellowship. He has given national faculty development and wellness programs workshops such as at ACGME, American College of Obstetricians and Gynecologists (ACOG), Council on Resident Education in Obstetrics and Gynecology, Association of Professors of Gynecology and Obstetrics (CREOG APGO) and AAMC. He is a certified Master TeamSTEPPS trainer and emotional intelligence coach who has published a book and many peer review publications on the topic. He is currently on the Board of Trustees of the Education Commission for Foreign Medical Graduate (ECFMG) and the editorial board of Journal of the Graduate Medical Education (JGME).

**Parikh, Shreel, MS**
Shreel Parikh, MS, is a second year medical student at Touro College of Osteopathic Medicine in New York, NY. He received his BA in French and Francophone Studies from the Pennsylvania State University and his MS in Interdisciplinary Studies in Biological and Physical Sciences from Touro College of Osteopathic Medicine. He is currently serving on the TouroCOM Wellness Committee.

**Patel, Palak, MA**
Dr. Palak Patel did her Anesthesiology residency at University of California, Irvine, followed by a Pediatric Anesthesiology fellowship at Children's Hospital of Los Angeles (CHLA) in 2016. She has since moved to Phoenix, Arizona and accepted a position with the University of Arizona College of Medicine Simulation team. She is excited to work with medical students and residents during their simulation training. Dr. Patel is also a Clinical Assistant Professor of Anesthesiology at Maricopa Integrated Health Sciences in Phoenix, Arizona. And a member of the Society of Pediatric Anesthesiology. Her interests include being involved in academic medicine at the medical school level and participating in leadership within the University.

**Patel, Shiv, BS**
Shiv Patel studies Human Biology and Human Centered Design at UC San Diego and serves as a research assistant at UC San Diego School of Medicine's Simulation Training Center. His research involves 3D printing in medical simulation and technology to improve medical education, and the incorporation of medical simulation in a clinical setting. Previously, he has worked on research projects that aim to understand seasonal microbial activity and its effects on soil properties, understanding gene expression using CRISPR cas9, and the attenuation of NIHL using antioxidant properties of amino acids.

**Patel, Sonal C., MA**
Sonal C. Patel earned Bachelor of Science and Master of Arts in Teaching degrees from Wayne State University. She conducted research in an NIH-funded project in cancer genetics, which was published to Modern Pathology. She then transitioned into an extensive career in K-12 education, designing and implementing innovations in curriculum and assessment. Patel now serves as the Assistant Director of Clinical Evaluation in the simulation center at Wayne State University School of Medicine.

**Pendergraph, Bernadette, MD**
Dr. Bernadette Pendergraph is an Associate Professor at the David Geffen School of Medicine in the Department of Family Medicine and is also the program director for the Harbor-UCLA/Team to Win Sports Medicine Fellowship. Besides being the team physician for Gardena High School, Los Angeles Harbor College, and Southwest College, Dr. Pendergraph also has expanded the curriculum in addiction medicine and pain management with Dr. Gloria Sanchez at Harbor-UCLA's Department of Family Medicine. bpendergraph@labiomed.org

**Peterson, John, HBA**
John Peterson is a second-year medical student at the University of Utah School of Medicine. He graduated from the University of Utah with an HBA in Biology. He works in the lab of Dr. Randy Olson at the Moran Eye Center where he studies phacoemusification and glaucoma diagnosis. A lover of the outdoors, John organized “Médecins en plein air aka Doctors Without Boredom,” a hiking group for med students that leads weekend hikes through the stunning Wasatch mountains. He volunteers as a Shift Manager at the Midvale CBC Clinic. Together with his classmates Elaine Taylor and Shreya Sreekantaswamy, he began the podcast “Medicine Personalized”.

**Pham, Kim, MD, MPH**
Kim Pham, MD, MPH, serves as Associate Dean for Student Affairs at the Frank H. Netter MD School of Medicine, Quinnipiac University. She is a general internist by training, with experience caring for veteran populations. Previously, she served as senior vice president and medical director of the not-for-profit organization, AmeriCares, overseeing international partnerships. She draws upon these experiences to focus on student well-being and to work toward advancing an environment that embraces inclusion and diversity.

**Phillips, Amelia, MPH, CPH**
Amelia Phillips, MPH, CPH, is the director of wellbeing in the office of student affairs at the University of South Florida Morsani College of Medicine.

**Phitayakorn, Roy, MD MHPE (MEd)**
Roy Phitayakorn completed his residency training in general surgery at Case Western Reserve University in 2009 and completed an endocrine surgery fellowship at the Massachusetts General Hospital in 2011. He is currently an Associate Professor of Surgery at Harvard Medical School with a practice in general surgery and endocrine surgery at the main campus of the Massachusetts General Hospital. Phitayakorn is also the MGH Director of Medical Student Education and Surgical Education Research and the Co-Director of the American College of Surgeons-accredited MGH Surgical Education and Simulation Research Fellowship program. He is the Senior Education Research and Development Consultant for the New England Journal of Medicine. Phitayakorn has a master’s degree in Medical Education from the University of Illinois at Chicago (MHPE). His MHPE thesis was on phone communication preferences of general surgery residents and attendings and won the best thesis award in 2007 and best presentation at the 2008 MHPE medical education conference. He was the first Surgical Simulation Fellow at the MGH Learning Laboratory and completed a certificate in simulation-based teaching from the MGH Institutes of Health Professions in 2011. Phitayakorn is a faculty member for several national medical education courses and institutions.

**Piazza, Scott, DO**
Scott Piazza is a PGY-3 resident with Marian Family Medicine Residency in Santa Maria, California. He strives to take the knowledge and experiences gained from a decade as an information technology and small business consultant and apply them to the pursuit of family medicine. In his previous career, he was recognized for taking on major initiatives, adapting to rapidly changing environments, and being a level-headed, process oriented manager who sought continuous quality improvement and life-long learning. In medicine, he is exploring opportunities to promote health and treat the whole person while providing exceptional care, including incorporation of osteopathic principles and practices. He serves as co-chief resident of the FM program, and previously served as co-chair of the didactics committee.

**Popa, Alina, MD**
Dr. Alina Popa, MD, is a Health Sciences Clinical Professor of Internal Medicine at the University of California, Riverside School of Medicine and the Associate Program Director of the Riverside Community Hospital/UCR School of Medicine Internal Medicine Residency Program. She received her MD from the University of Medicine and Pharmacy Timisoara in Romania and followed that with her residency in neurology at the County Hospital Timisoara. Upon coming to the United States, she completed her residency at St. John's Episcopal Hospital/SUNY Brooklyn in New York. She later earned a certificate in clinical research and completed a fellowship in internal medicine at the Mayo Graduate School of Medicine in Rochester, Minnesota. Prior to coming to UC Riverside, she was Director for Medical

Education at the UC San Diego Division of Hospital Medicine and a Core Faculty member of the UCSD Internal Medicine residency program. She was responsible for developing the curriculum for the UCSD Patient Safety and Quality Improvement programs as well as the neurology curriculum for the UCSD internal medicine residency program. During her time at UCSD, she received numerous teaching awards. Her interests include medical education, faculty development, leadership in medicine, evidence-based medicine, quality improvement and patient-centered rounding. Dr. Popa is part of the IPASS-Study group that was awarded the Eisenberg award by the National Quality Forum and the Joint Commission in 2016.

**Pott, Emily, BS**
Emily Pott is a fourth-year medical student at the Keck School of Medicine at USC. Pott grew up in Chappaqua, New York and graduated from Duke University in 2014 with a BS in Neuroscience. At Keck, Pott has shown interest in leadership within her medical school community. Pott is president emeritus of the largest student organization on campus, the Emergency Medicine Student Interest Group and holds the position of Social Chair on the Class of 2019 Student Council. Pott co-founded the Keck Anatomy Mentorship Program to supplement the existing gross anatomy curriculum and provide incoming students with extra support and mentorship both inside and outside the classroom. Pott is contributing to research in both academic and clinical medicine, specifically within the Division of Trauma Surgery and Critical Care at LAC+USC. Pott hopes to pursue a career in Emergency Medicine, combining her passions for problem-solving, mentorship, and patient care.

**Racine, Sam, MA**
Sam Racine is an Evaluation Assistant for the Department of Medical Education at the Keck School of Medicine of USC. He has educational backgrounds in Economics and Statistics, and is passionate about applying quantitative methods towards humanistic subjects, primarily education and psychology. His work for Keck involves analyzing student data and developing discernible results regarding students' thoughts towards curriculum and instructor teaching methods.

**Rao, Sheela, MD, MACM**
Sheela Rao is a Clinical Associate Professor of Pediatrics at Children's Hospital of Los Angeles. She graduated from Keck's Masters of Academic Medicine program in 2017. She has taught pediatric residents and medical students in both inpatient and outpatient clinical settings since joining the faculty at USC in 2006. Since the beginning of her career, she has worked in the interdisciplinary CHLA Foster Hub clinic where pediatricians join with psychologists to complete initial health assessments of children entering the foster care system. She has recently joined colleague, Dr. Jennifer Rafeedie, in creating and delivering an undergraduate course titled, Biological and Behavioral Basis of Disease for the 2018 academic year.

**Reddy, Kavya, MD**
Kavya M. Reddy is a second year Gastroenterology and Hepatology Fellow at Saint Louis University School of Medicine, where she also attended medical school. She previously completed her internal medicine training at Kaiser Permanente Los Angeles Medical Center where she also worked as faculty for two years prior to starting fellowship. Dr. Reddy was a Chief Resident during her time in residency and always had an interest in education. During her time as faculty at Kaiser Permanente LAMC, she served as the UCLA Primary Care Rotation Site Coordinator for Medical Students. Currently, she serves on the quality improvement committee and participates in rapid improvement events for Saint Louis University Hospital. She has also participated in clinical research and been an author or co-author in peer reviewed journal articles, book chapters, and participated in poster presentations.

**Rich, Sushama, MD**
Sushama Rich, MD, is an Assistant Professor and Course Director for Clinical Anatomy and Embryology for the Medical students as well as the Masters students. She earned her MD from Stanley School of Medicine in India in 1988 and practiced Internal Medicine for a year before immigrating to the United States. Since then, she received appointments and has served on the faculty at the Sophie Davis School of Medicine, Albert Einstein School of Medicine, Weil Cornell School of Medicine, SUNY Downstate, and SUNY Stonybrook. Dr. Rich joined Touro College of Osteopathic Medicine in June of 2009 when she

took the position of Department of Anatomy Chair and is responsible for the oversight of Human Gross Anatomy, Histology, Neuroanatomy and Embryology, courses which are required for the DO and Master's degree programs. She serves on the Curriculum and Community Service Committees.

**Riddell, Jeff, MD**
Dr. Jeff Riddell is an Assistant Professor of Clinical Emergency Medicine at the Keck School of Medicine of the University of Southern California where he works with the residency at LA County + USC Medical Center and co-directs the Medical Education Fellowship. He [cine. He has received numerous awards and honors for his teaching and leadership. Dr. Riddell's research explores medical education thru the lens of digital innovation by work that brings understanding to the gaps between traditional academic practices and contemporary teaching and learning.

**Ring, Jeffrey M., PhD**
Jeffrey Ring, PhD, is an author, leadership coach, and consultant working with dysfunctional health care teams. He is also a bilingual Spanish-speaking health psychologist and Principal at Health Management Associates with a focus on fostering seamless integrated health care. For nineteen years, he served as Director of Behavioral Sciences and Cultural Medicine at the Family Medicine Residency Program at White Memorial Medical Center in Los Angeles, and he holds a Clinical Professorship in Family Medicine at the Keck School of Medicine at the University of Southern California. His work has focused on culturally responsive and respectful care and he is the first author of the book Curriculum for Culturally Responsive Care: The Step-by-Step Guide for Cultural Competency Training. As a healthcare consultant, Dr. Ring works with clients to optimize the delivery of outstanding integrated services to patients. He currently serves as a practice coach for integrating medical practitioners into behavioral health clinics and behavioral health/nurse care manager/care coordinator teams into primary care clinics serving vulnerable, underserved and complex patients. He works with teams with an eye to enlightened leadership and team functioning, optimal workflows, data documentation and treat-to-target approaches to coordinated care. He coaches teams on population health approaches, cost savings as well as attention to both the patient and practitioner experience of care.

**Roepke, Clare, MD**
Clare Roepke is an Assistant Professor of Emergency Medicine at the Lewis Katz School of Medicine at Temple University. She graduated from the Los Angeles County/USC Medical Center Emergency Medicine Residency in 2015 and was a Medical Education fellow there from 2015-2016. She joined the faculty at Temple University in 2016. Her interests include both undergraduate and graduate medical education.

**Saffier, Kenneth, MD**
Ken Saffier is a family physician and member of the Residency Leadership Group of Contra Costa nRegional Medical Center's Family Medicine Residency. He specializes in addiction medicine and chronic pain management. Dr. Saffier graduated from SUNY at Stony Brook School of Medicine and completed his residency at Chicago's Cook County Hospital. In 2008, Dr. Saffier completed a faculty development fellowship at USC's Division of Medical Education and is a Clinical Professor at UC San Francisco Department of Family and Community Medicine. Dr. Saffier is an active member of the California Society of Addiction Medicine's education committee and is a Diplomate of the American Board of Family Medicine and American Board of Addiction Medicine. Since 2012, Dr. Saffier has been a member of the Motivational Interviewing Network of Trainers.

**Schaff, Pamela, MD**
Pamela Schaff, MD, is Associate Professor of Clinical Family Medicine and Pediatrics, and Director of the HEAL (Humanities, Ethics/Economics, Art, and the Law) Program at the Keck School of Medicine (KSOM) of the University of Southern California (USC). She graduated from Pomona College with a BA in English Literature and received her MD from the Mount Sinai School of Medicine. She has practiced pediatrics since completing her residency at Children's Hospital of Los Angeles and has taught at KSOM since 1986. She served as Director of the ICM program from 1996 to 2007, Assistant Dean for Curriculum from 2007 to 2012, and Associate Dean for Curriculum from 2012 until August 2016. Dr. Schaff served as Undergraduate Medical Education (UGME) representative for the Western Group on

Educational Affairs from 2009-2012, and as national UGME chair for the Group on Educational Affairs (GEA) of the Association of American Medical Colleges (AAMC) from 2012-2014. She now chairs the GEA's working group on professional identity formation. Her current areas of investigation include professional identity formation, and the role of the arts and humanities in medical education. Dr. Schaff was awarded the Excellence in Teaching Award in 1998, 2002, 2005, and 2017, KSOM's Master Teacher Award in 2005, the USC-Mellon Mentoring Award in 2008, and USC's Remarkable Woman Award in 2010. She is currently a PhD candidate in Literature and Creative Writing at USC.

**Schooley, Sean, BA**
Sean Schooley is a medical student from the University of Colorado Anschutz School of Medicine. He is currently on a 1-year medical education fellowship with the University of Miami Miller School of Medicine. He is interested in pediatrics and critical care medicine. He hopes to use advances in education technology to modernize the medical education landscape and make medical knowledge more accessible. His interests include making pre-clinical medical education more streamlined and improving the communication and educational relationship between clinician and patient.

**Schreiber, Jacob, MA**
Jacob Schreiber is a Research Project Specialist for the Department of Medical Education at the Keck School of Medicine of USC. He has training backgrounds in both Psychology and Applied Anthropology, and as such is primarily interested in applying qualitative and ethnographic methodology to investigate cultural intersections of medical and educational environments. His work for the Department of Medical Education focuses on student narrative feedback about learning experiences in both didactic and clinical spaces.

**Shalikar, Hamed, MD**
Dr. Hamed Shalikar was born and raised in Southern California. Dr. Shalikar felt a strong bond to the community and remained in the region for his undergraduate education, obtaining a degree in political science and neuroscience at UCR. Dr. Shalikar then went on to medical school at UCLA and was active in community outreach programs. Dr. Shalikar completed his family medicine residency at White Memorial Medical Center. During residency, Dr. Shalikar was Chief Resident and volunteered for football games and local boxing matches. Also, Dr. Shalikar was involved in implementing a mentorship program for a local high school. Dr. Shalikar is board certified in Family Medicine and Sports Medicine, CAQ. He completed his primary care sports medicine fellowship at Kaiser Permanente, Fontana. Dr. Shalikar has been active as a team physician for high schools and colleges. He enjoys having a practice that covers the breadth of family medicine and sports medicine. Dr. Shalikar's patients range from: newborns to parents; adolescents to elderly, athletes to weekend warriors, professionals to amateurs. Outside of work, Dr. Shalikar cherishes time with his family.

**Shamoon, Michael, MD**
Michael Shamoon MD is the 2018 Medical Education fellow for the Department of Emergency Medicine at LAC+USC and recently graduated from NYU/Bellevue Residency in New York City. Prior to medicine Dr. Shamoon had a tech career in web development and has been able to leverage these skills in the creation of free open-access medical education sites such as Core EM (https://coreem.net) and the community site FemInEM (https://feminem.org). Dr. Shamoon is currently pursuing a formal medical education fellowship and a masters degree in order to be able to understand, evaluate and create innovative tools and platforms in the education space for medical learners.

**Shear, Marni, DO**
Marni Shear is a second-year hospital medicine fellow at Children's Hospital Los Angeles (CHLA) and a Clinical Instructor at the Keck School of Medicine at the University of Southern California. Dr. Shear completed her residency in pediatrics at St. Christopher's Hospital for Children in Philadelphia, Pennsylvania. Dr. Shear is currently pursuing coursework in the Master of Public Health program at the University of Southern California. research interests include advocacy and medical education, and Dr. Shear is currently working to adapt content from the Academic Pediatric Association's U.S. Child Poverty Curriculum to investigate the efficacy of digital storytelling as a novel educational platform to increase resident engagement and learning on this topic.

**Shenoy, Ranjit, MD**
Ranjit V. Shenoy is a third-year pediatric endocrinology fellow physician at UCLA. While in fellowship, he developed an e-learning video lecture series for UCLA and CHOC pediatric residents rotating through endocrinology. Dr. Shenoy is also leading a team of fellow and attending physicians throughout the country to publish the first structured oral exam for formative feedback in pediatric endocrinology. Dr. Shenoy is completing a two-year medical education fellowship at the David Geffen School of Medicine at UCLA. rshenoy@mednet.ucla.edu

**Sigalov, Viktor, MD**
Dr. Viktor Sigalov has a broad background in both medicine and educational psychology. Currently he is teaching at the UCLA David Geffen School of Medicine and Antioch University, Los Angeles. His areas of instruction are Systems Thinking and Systems Dynamics, basic sciences, as well as Educational and Child Psychology. During his more than 30 years of experience, Dr. Sigalov originated an instructional methodology – High Organization of Personal Experience that proved to be an effective teaching/learning tool in secondary, undergraduate, graduate, and interprofessional education. Dr. Sigalov also developed and implemented curricula for teaching the foundations of Systems Theory and Pedagogy of Creativity to engineers, business people, and educators.

**Silvas, Andrea, BS**
Andrea Silvas is a second-year medical student at PLFSOM TTHUSC El Paso. Silvas is a chair for the Student Life Committee at her medical school; by advising and coordinating wellness programs on campus for the organization as a whole, she emphasizes and promotes the need for wellness amongst her peers. As a former competitive dancer and current yoga practitioner, Silvas has led many yoga and dance classes at her school. She has incorporated her medical studies into her yoga classes through partnering with her school's anatomist to lead an anatomy centered yoga class and incorporated yoga into her medical journey by teaching yoga at free local medical clinics. Silvas works to consistently apply her self-care methodology regardless of how busy she is; by paying diligent attention to her diet, exercise, and sleep schedule, she has inspired others to prioritize their wellbeing as well. She aspires to be a family physician at a community clinic where preventative health is promoted through physical activity, nutrition, and mental/emotional health. Silvas hopes to personally mentor patients in their journey to improved physical health and to incorporate her husband, who is a budget and health-conscious cook, into her practice. Through this research and future practice, Silvas's goal is to help people, patients, and health care providers maximize their personal wellbeing, joy, and participation in life.

**Soh, Michael, PhD**
Michael Soh is a medical educator and evaluator who currently serves as Associate Director for Curriculum and Evaluation in the Center of Excellence in Primary Care Education within the Greater Los Angeles VA Health System. His professional work largely focuses on the development, delivery, evaluation, and dissemination of interprofessional, team-based curricula within health professions education. His research has revolved around myriad of medical and health professions education issues including interprofessional team training, humanism in medicine, curriculum and pedagogy development and innovation, and diversity in the healthcare pipeline.

**Soufan, Rami, DO**
Rami Soufan is a first-year post-graduate resident at Arrowhead Regional Medical Center as well as Kaiser Permanente Fontana. He is a preliminary surgical resident with his residency to be completed within Anesthesia at Loyola University Medical Center in Chicago, IL starting in July 2019. Dr. Soufan is a doctoral graduate in Osteopathic Medicine which he received from the Chicago College of Osteopathic Medicine in 2018. He received his Master of Science in Biotechnology at Rush University Medical Center in 2013. Rsoufan1@gmail.com

**Sreekantaswamy, Shreya, BS**
Shreya Sreekantaswamy is a second-year medical student at the University of Utah School of Medicine. She holds a BS in Psychobiology from UCLA. Sreekantaswamy aspires to pursue a career in academic medicine and is especially keen on improving medical education through increased opportunities for mentorship. In addition to LEAP, Sreekantaswamy has helped found a student-to-student mentoring

system at her institution that spans all four medical classes. Aside from her participation in mentorship programs, Sreekantaswamy is involved in research in Dermatology, is part of the leadership for the Internal Medicine Interest Group, the Dermatology Interest Group, the Student Global Health Initiative, the Professionalism and Diversity Committee, and the American Medical Association. She also has collaborated with her classmates to initiate a podcast known as 'Medicine Personalized' and an Oxford-style debate series called 'The Differential,' a platform that encourages collaboration between medical and law students to discuss sensitive issues in medical ethics.

**Sridhar, Jayanth, MD**
Jayanth Sridhar is currently an Assistant Professor of Clinical Ophthalmology at the Bascom Palmer Eye Institute in Miami, FL. His research interests include novel educational platforms for ophthalmology residents and fellows and applications of new retinal imaging systems. He also is creator and host of "Straight from The Cutter's Mouth: A Retina Podcast", a free educational program for retinal specialists and ophthalmologists of all levels of training that has released episodes at least once a week since November 2016.

**Stevens, Paige, MD**
Paige Stevens is a third-year pediatric resident at Children's Hospital Los Angeles. She graduated from the University of California, Riverside with a Bachelor of Science degree in Biology and from Loma Linda University School of Medicine with her Doctor of Medicine degree. Her interests include medical education and mentoring, and she is member of her residency program's Education Track. She also serves as a member of the Program Evaluation Committee in addition to the Resident and Physician Wellness Committees. She will serve as a Chief Resident at Children's Hospital Los Angeles during the 2019-2020 academic year and will then be pursuing a career in academic medicine in the subspecialty of Pediatric Intensive Care.

**Stiers, Katharine Blair, MD Candidate**
Blair Stiers is a third-year medical student at the Keck School of Medicine of USC. She previously earned her BA in Public Health with a minor in Spanish Literature from UC Berkeley. While at Berkeley, she developed a strong interest in preventive medicine and the reduction of health disparities in marginalized communities, especially as they relate to obesity and metabolic diseases. She continued to pursue this interest through her work with Dr. Michael Goran and his team at the Childhood Obesity Research Center at USC to examine the impact of a low-sugar diet on liver fat content in Latino pediatric patients with NAFLD. This year, she was selected as a Deans Research Scholar under the mentorship of Dr. Gregory Harlan at USC. Her current research with Dr. June Tester examines the effects of a whole grain and produce home-delivery program on anthropometric measures of food insecure families at UCSF Benioff Children's Hospital Oakland. Additionally, she is creating and assessing the effects of online educational videos for families to improve their understanding of vegetable and whole grain preparation, and how much they should aim to consume. During her first two years at Keck, she served on the leadership board of the Pediatric Student Interest Group and has been involved in considerable community outreach. She hopes to become a pediatrician working with underserved populations and promoting health education to improve health outcomes.

**Stuart, Elizabeth, MD, MSEd**
Dr. Elizabeth Stuart attended medical school at Brown University and completed residency and fellowship training at Stanford University. She earned a master's degree in Medical Education from the University of Southern California in 2001. At Stanford, she currently serves as Director of Medical Student Education in Pediatrics, Associate Division Chief for Primary Care and Education in General Pediatrics and Associate Residency Program Director for Primary Care. Dr. Stuart's clinical work involves supervising residents and students in primary care clinic. Her academic interests include cross-cultural communication, clinical reasoning, performance assessment, and faculty development in clinical teaching.

**Suresh, Preetham, MD**
Dr. Preetham Suresh graduated from Northwestern University with a degree in Chemical Engineering and went to medical school at Case Western University. He went on to complete his residency in

Anesthesiology at UCSF. He currently serves as the Medical Director of the Simulation Training Center, Associate Clinical Professor, and the Associate Education Director in Anesthesiology at UC San Diego School of Medicine. Dr.Suresh's research focuses on innovation in medical simulation and has worked on a number of projects that involve the creation of robots and tracking systems to quantify learner performance.

**Tawfik, Huda, MD, PhD**
Huda Tawfik, MD, PhD, is an associate professor of Pharmacology working within the Foundational Sciences discipline of the CMU College of Medicine. Dr. Tawfik received her MD (1990) from the Suez Canal University, Egypt, where she was trained in family medicine. She received her PhD in pharmacology and toxicology in 2004 from Brody School of medicine at East Carolina University, Greenville, NC, USA. Before joining CMED, she was previously working with the Medical College of Georgia as an assistant professor of pharmacology and a medical educator. During her work at MCG, she has had success in developing a curriculum which integrates pharmacology with clinical contents. She utilized active learning techniques, such as Team-Based Learning, Case-Based, and Problem-Based Learning to enhance the understanding of pharmacology within clinical contexts. She also uses a high-fidelity simulation activity to teach hard topics in pharmacology and therapeutics such as antiarrhythmic medications. Dr. Tawfik is involved in multiple collaborative undergraduate medical education research projects. Dr. Tawfik's current research interests include teaching clinical reasoning to medical students using different modalities and developing curricular activities for the AAMC and Pharmacology EPAs.

**Tenore, Alfred**
Alfred Tenore is Professor of Pediatrics and Medical Education, Senior Associate Dean of Medical Education and Chair of the Department of Medical Education at CalMed. Dr. Tenore has held a number of senior academic and non-academic positions over the last four decades including Vice President of the European Academy of Paediatrics (EAP) and President of the EAP (Paediatric section of the UEMS-European Union of Medical Specialists). He has received several awards for teaching both in the United States and in Europe. Dr Tenore has been involved in the implementation of the "Global Pediatric Education Consortium (GPEC)" as the Founding Chair; of The European/International Intensive program in "Bioethics Applied to Clinical Practice" in its 20th year and of a nationwide "Progress Testing" in all 49 Italian Medical schools covering all academic years, which is currently in its 12th year. Dr. Tenore has also held editorial positions for a number of top tier medical journals.

**Thomas, Cara, Mchem**
Cara Thomas is a Swansea University final year medical student from South Wales, UK. After obtaining a Master’s degree in Chemistry from Cardiff University, Thomas decided that a career in medicine would be more fulfilling and challenging. Thomas currently holds interests in general medicine (including care of the elderly and general practice) and medical education.

**Trial, Janet, EdD, CNM, MSN**
Jan Trial is an Assistant Professor of Clinical Surgery at the Keck School of Medicine at the University of Southern California. As the Director of Simulation Education, she coordinates the simulation experiences throughout the curriculum. Major goals of her role are to establish equivalency for both simulated clinical experiences and evaluation. Elemental to simulation is the integration of the interprofessional team and training in teamwork and communication skills. Dr. Trial was Director of Perinatal Quality for the Women’s Center at Long Beach Memorial Hospital, Long Beach California from June 2013 – January 2017. As director, she coordinated a wide variety programs for the improvement of patient care with an interprofessional health care team. She created numerous in-situ simulations to improve obstetrical outcomes at their high-risk tertiary care perinatal center. She interfaced regularly with physicians, residents, nurses and allied health professionals in both the clinical and classroom environments. Earlier, Dr. Trial was an assistant professor at the Keck School of Medicine at the University of Southern California. She was a faculty member in the Division of Medical Education at Keck School of Medicine. Additionally, she directed and was a student mentor for the Professionalism in the Practice of Medicine Course. During the 2007-2009 academic years she was project coordinator for the Liaison Committee on Medical Education.

**Vachhani, Avani, MD**
Avani Vachhani is a third-year pediatric resident at CHLA. Medical education has been a passion of Dr. Vachhani's since she was in college. She began teaching in both the formal and informal setting during her undergraduate years at UCLA where she was a CPR/First Aid clinical instructor. During her later years at UCLA, Dr. Vachhani began to mentor new undergraduates interested in pursuing careers in the sciences. This passion for mentorship and education followed her to Philadelphia where she moved to attend Jefferson Medical College. At Jefferson Dr. Vachhani began to teach in a formal classroom setting in her third year where she did case-based review sessions prior to exams during the Foundations to Clinical Medicine course. She also continued education in an informal setting with the Burmese refugee population in Philadelphia where she volunteered in free medical clinics and middle schools to teach health related topics including nutrition and wellness. In residency Dr. Vachhani was very fortunate to find colleagues with similar interests in medical education. The idea of this project came when discussing how ill-prepared Dr. Vachhani felt teaching medical students on the wards despite her passion for teaching and experience thus far. This curriculum was created in hopes to arm future interns with the skills necessary to teach and welcome new third year medical students. Dr. Vachhani hopes to continue her work to teach trainees.

**Vallejo, Alberto F., PhD**
Alberto Vallejo, PhD is course director for the Basic Medical Sciences course and Co-Chair of the Integrative Learning Committee at the Keck Physician Assistant (PA) program. An immigrant from Mexico and native Spanish speaker, he served as a family medical interpreter and tutored Spanish in college. As a clinical exercise physiologist, he acted as medical interpreter. He currently advises and contributes to the PA program's required medical Spanish curriculum. Dr. Vallejo has also given numerous presentations focusing on use of technology in the classroom, both locally and nationally, at various educational conferences within higher education. In addition, he has conducted workshops on use and implementation of technology into PA education at the Physician Assistant Education Association.

**Vistoso, Anette, DDS**
Anette Vistoso has been involved in academics since 2012, after graduating from the DDS program. She completed her Residency in Prosthodontics at Universidad del Desarrollo (Chile) and is currently a Master student of the Orofacial and Oral Medicine program at Herman Ostrow School of Dentistry of USC. Her research is focused on the use of technology to improve academic and clinical processes with the use of UML modified diagrams, design, and development of medical health records charts, and symptom's checkers.

**Vo, Anne T., PhD**
Anne Vo is Assistant Professor of Clinical Medical Education and Director of Educational Research at the Keck School of Medicine of USC. As an evaluation researcher, Dr. Vo's substantive interests lie at the intersection of comparative evaluation theory, evaluation capacity building, and organizational development. Dr. Vo's work contributes to the field's understanding of how evaluation can be practiced better, where and how social science theory and evaluation science dovetail into each other, and how this knowledge can be leveraged to drive change. Dr. Vo has taught graduate-level courses on research methodology and design as well as special topics seminars in evaluation. Dr. Vo has published in journals such as the American Journal of Evaluation, Evaluation and Program Planning, and New Directions for Evaluation. She also serves as Editor of the American Journal of Evaluation's section on Teaching and Learning of Evaluation, Co-Chair of the American Evaluation Association's Research on Evaluation Division and is Chair of the Southern California Evaluation Association.

**Wagner, Ellen, MD**
Ellen Wagner is a 2018 graduate of Loyola Stritch School of Medicine and current pediatrics resident at the University of Chicago Comer Children's Hospital. She received her bachelor's degree in History in 2012 from Amherst College, graduating with honors. Prior to matriculation at Loyola, Ellen completed pre-medical courses at the University of Minnesota and worked as a medical scribe in the E.R. of a level one trauma center in Minneapolis, MN. As she progressed through medical school, Dr. Wagner drew from her experience as a medical scribe for clinical competency and confidence. Motivated by a desire to

foster change in medical education for future students, Ellen co-created a medical student scribing initiative. The program received honorable mention in the 2016 AMA Medical Education Innovation Challenge and was presented at the 2017 AMA Change MedEd Conference. Most recently, it received a $10,000 2018 AMA Accelerating Change in Medical Education Innovation Grant. Dr. Wagner is eager to continue research in medical education during her pediatrics residency at University of Chicago and plans to pursue a career in academics and education following her graduation in 2021.

**Wald, David, DO**
Dr. David Wald is the Emergency Medicine Clerkship Director in the Department of Emergency Medicine, Lewis Katz School of Medicine (LKSOM). He also serves as the Assistant Dean for Clinical Simulation. Dr. Wald is a professor of Emergency Medicine and has been on faculty at the LKSOM since 1996. One of his academic interests is curriculum development. dwald@temple.edu

**Warde, Carole, MD**
Carole Warde is a clinician educator in General Internal Medicine. She completed a Primary Care Internal Medicine Residency at the University of Washington, and an Ambulatory Research Fellowship and Medical Education Fellowship at the WLA VA and UCLA. She is currently practicing half-time as a general internist and is the Director of the Center of Excellence Interprofessional Academic Homeless Patient Aligned Care Team (COE IA HPACT). As a general internist, her clinical expertise is in the care of patients with complex psychosocial needs preventive health care and use of lifestyle interventions in chronic disease management. As a medical educator, she has experience in curriculum, faculty and leadership development and has worked at the undergraduate, graduate and continuing medical education levels. She is currently leading the Interprofessional faculty of COA IA HPACT as they develop innovative curricula to prepare graduates to work in and lead patient-centered interprofessional (IP) teams. The COE IA HPACT aims to train the next generation of health professionals to care for vulnerable patients in a way that builds patients' self-efficacy while meeting their social, psychological, and physical needs, with empathy and teamwork. Humanism in medicine is central to the center's activities, which include a relationship-centered culture building process, a faculty development program based in humanism and the development of a "pocket toolkit" of specific techniques that help caregivers stay humanistic in the care of patients with multiple challenges. Her other academic interests include physician career satisfaction and burnout, work-family balance, evidence-based medicine in clinical practice, and patient-centered interviewing.

**Weisman, Anne, PhD, MPH, LMT**
Anne Weisman, PhD, MPH, LMT, is the Director of Wellness & Integrative Medicine with the UNLV School of Medicine. She is working to develop wellness and integrative medicine curriculum and workshops for the medical students, faculty and residents. Previously, Dr. Weisman worked in the field for thirteen years as a massage therapist in HIV/AIDS clinics and hospices. She was awarded the Jefferson Award for Public Service for this work in 2007 and has presented her research numerous times at the Nevada Public Health Association and American Public Health Association conventions. Dr. Weisman was chosen to attend the Clinton Global Initiative University in Miami, FL.

**White, Travus, MD**
Travus White, MD is third-year pediatric resident at Children's Hospital Los Angeles. In addition to being a member of the program's Education Track, he is involved in the hospital's Graduate Medical Education Committee and its Physician Wellness Committee. Initially from Florida, he received both his Bachelor of Science in Psychology and his Doctor of Medicine degrees from the University of Florida. He intends to pursue a career in academic medicine in the subspecialty of Pediatric Cardiology.

**Wolbrink, Traci, MD, MPH**
Traci Wolbrink has the expertise necessary to develop innovative, evidence-based, educational content relevant for the health professional learner. I co-founded and co-direct OPENPediatrics (www.openpediatrics.org), an online, global knowledge sharing platform designed for pediatric healthcare providers, currently in use in over 220 hospitals, and in every country and territory in world. I have led the development of both the platform as well as the peer-reviewed content published on the site. Since the release of OPENPediatrics in 2012, we have shared almost 1.5 million resources with pediatric

healthcare professionals on the OPENPeditarics website and our YouTube Channel. Our current data demonstrates approximately 95,000 unique visitors per month, with over 1000 of those visitors being users with registered accounts. Our site contains almost 400 videos, 23 structured, self-paced curricula including 5 available for CME credit, three virtual simulators, 23 medical calculators, 34 summary documents, and 129 animations and illustrations available to educators via the creative commons license.

**Wood, Elena, MD, PhD**
Elena A. Wood, MD, PhD, Associate Professor, Department of Medicine, Medical College of Georgia at Augusta University. Dr. Wood received her MD (1994) from the Siberian State Medical University (SSMU), Russia, where she was trained in general medicine and medical informatics. She has PhD in general oncology and medical informatics (1998) from the Cancer Research Institute of the Siberian Branch of the Russian Academy of Medical Sciences. Dr. Wood was a National Council for Eurasian and East European Research Carnegie Foundation fellow in telemedicine (2002) at the Medical College of Georgia (MCG) Center for Telehealth, Augusta, GA. She joined the center in 2004 and moved to the MCG Academic Affairs in 2016. In 2015 she completed her educational research fellowship at the Innovation Educational Institute at the MCG. She is assistant director and preceptor for the physical diagnosis course. She is actively involved in innovative program development and evaluation within the Academic Affairs. Dr. Wood's professional interests include designing and developing educational innovations and utilization of instructional technologies and medical illustration in medical education. She has published more than 70 journal articles, book chapters, and abstracts.

**Wright, Erika, PhD**
Erika Wright holds a PhD in English from the University of Southern California. She has appointments as a Lecturer in the English Department (University Park Campus) and as an Associate Professor of Medical Education at KSOM. She is the Associate Director of the humanities, ethics/economics, arts and law (HEAL) program at USC. Her book, *Reading for Health: Medical Narratives and the Nineteenth-Century Novel* (2016), examines the rhetoric of disease prevention and health maintenance in works by Jane Austen, Charles Dickens, and Elizabeth Gaskell. She has contributed entries on health and disease to the *Companion to Victorian Popular Fiction* and an essay on Secrecy in Victorian fiction to *Literature Compass.* Her articles on medicine and literature, graduate education, and medical professionalism appear in *Studies in the Novel,* the *Midwestern Modern Language Association* journal, and the forthcoming anthology, *Engaging Hearts and Minds: The Use of Literature to Teach Professionalism.* Erika has begun a new project that explores the role of ethics in liberal arts and medical education curricula. In addition to teaching courses on the British literature survey, Science Fiction, and Women in Literature for the English Department, Erika brings her expertise in narrative theory and close reading to the Narrative Medicine Workshops she has designed and taught for the HEAL Program.

**Wu, Velyn, MD**
Velyn Wu, MD FAAFP CAQSM is a core family medicine faculty at Lynchburg Family Medicine Residency Program in Lynchburg, Va. Dr. Wu has been with the residency program since 2014 and is the assistant director of sports medicine. She directs the musculoskeletal, radiology/POCUS and office resident rotations. Her redesign of the residency program's musculoskeletal and sports medicine rotation has been presented at RPS/PDW and 2018 STFM annual conference. Dr. Wu holds teaching positions with Virginia Commonwealth University College of Medicine, University of Virginia College of Medicine, Edward Via College of Osteopathic Medicine and Liberty University College of Osteopathic Medicine. Dr. Wu also is the head team physician for Sweet Briar College, team physician for the Lynchburg Hillcats, the Cleveland Indians High-A affiliate, medical director for the Virginia Ten-Miler and co-medical Director for the Lynchburg Ultramarathon series.

**Yates, Evan, MBA**
Evan Yates is a 4th year medical student at Western University of Health Sciences with plans to match into Emergency Medicine. After realizing his true passion lies at the intersection of healthcare and technology, he decided to take a year off of medical school and completed an MBA at the SC Johnson Graduate School of Management at Cornell University; a rigorous 1 year program providing students the backgrounds to incorporate the latest technological advancements into their fields of practice. He has

been 3D printing for 6 years and has since created dozens of unique designs and medical simulation models including a thoracotomy simulation, a novel JVD measuring device, and a cardiac ultrasound practice tool. He has won numerous awards for the research he has performed thus far and was also nominated for the 2016 Forbes 30 Under 30 in Healthcare

**Yoshida, Brandon, BA**
Brandon Yoshida is a second-year medical student at the Keck School of Medicine of USC. Yoshida has been a part of the KOLI team as a first-year representative and as a content creator after using KOLI's content during his first year of medical school. Yoshida graduated summa cum laude from UCLA in 2017 with a major in chemistry. As an undergraduate, Yoshida was a teaching assistant for chemistry and biology and is currently a teaching assistant in anatomy for undergraduates and a tutor for first-year medical students.

**Yu, Helena, MD**
Helena Yu is a second-year pediatric resident at UCSF Benioff Children's Hospital Oakland, and is also enrolled in the UCSF School of Medicine's Health Professions Education Pathway, through which she is gaining experience in teaching and medical education. For Dr. Yu's undergraduate education Dr. Yu attended the University of Chicago, where I studied biology and the history and philosophy of medicine. I then attended the Keck School of Medicine of USC and graduated in 2017. My interests in pediatrics include hematology/oncology, bioethics, and medical education.

**Yu, Jaime, MD**
Jaime Yu is an Assistant Professor in the Division of Physical Medicine & Rehabilitation, Department of Medicine, Faculty of Medicine & Dentistry, at the University of Alberta in Edmonton, Canada. Dr. Yu completed her undergraduate and postgraduate medical training at the University of Calgary, and subsequently worked in a general physiatry practice in a community setting for several years, encompassing both neurorehabilitation and musculoskeletal conditions. Dr. Yu joined the faculty at the University of Alberta in 2016 and has been active in leadership roles at both the undergraduate (MSK system course coordinator) and postgraduate (physical medicine & rehabilitation residency program assistant program director) medical education levels. Dr. Yu is currently completing her Master's in Education in Health Sciences Education through the University of Alberta, and gaining experience in the realm of medical education scholarship.

**Yuan, Nathaniel, DO, MBA**
Nathaniel Yuan is a first-year resident physician at the family medicine program in Kaiser Permanente Los Angeles. Yuan has a minor in music performance from Pitzer College and graduated osteopathic medical school from Western University College of Osteopathic Medicine of the Pacific.

**Zackria, Rasiq, DO**
Rasiq Zackria, DO is a second-year Internal Medicine Resident at Riverside Community Hospital/UCR School of Medicine. Dr. Zakria received his Doctor of Osteopathic Medicine degree at A. T. Still University - School of Osteopathic Medicine in Arizona. Dr. Zakria is working closely with the program leadership in developing a Resident as Teacher curriculum. His interests include medical education, quality improvement, and patient safety. He enjoys teaching and is working towards a career in clinical academic medicine. Dr. Zackria is actively involved in multiple quality improvement projects at Riverside Community Hospital and serves as a class representative of the Internal Medicine program to the Graduate Medical Education committee.

**Zapata, Geny, PsyD**
Geny Zapata, Psy.D., is a health psychologist who serves as Director of Behavioral Sciences at White Memorial Medical Center Family Medicine Residency Program. Dr. Zapata earned her Doctorate in Clinical-Community Psychology from the University of La Verne and is a licensed psychologist in California. Dr. Zapata completed a two-year American Psychological Association (APA) accredited fellowship in Behavioral Medicine and in-patient Psychiatry at Harbor-UCLA Medical Center and an APA accredited internship at Children's Institute Incorporated. Dr. Zapata is a CAPIC/MHSA grant recipient for her work with underserved populations. Additionally, she serves as a member of the Institutional Review

Board (IRB) committee at the Reiss-Davis Graduate Center for Child Development and Psychotherapy. She has worked in hospital and clinical community settings providing culturally and linguistically appropriate mental health services to populations of diverse backgrounds and clinical supervision/consultation/education to doctoral and master level medical and mental health providers.

**Zhuravlova Iuliia, MD, PhD**
Iuliia Zhuravlova, MD, PhD, is an associate professor of Anatomy and Embryology at Trinity School of Medicine, St. Vincent and the Grenadines. Started working at the Lugansk State Medical University (LSMU), Ukraine, as a senior laboratory assistant in the department of Operative Surgery and Clinical anatomy in 2008. Entered postgraduate program in normal human anatomy at LSMU in 2008, at the same time started working as a part time assistant professor of the department of Operative Surgery and Clinical anatomy. Was awarded PhD degree in normal human anatomy in 2011. From 2011 was working as a full-time assistant professor of the department of Operative Surgery and Clinical anatomy. Dr. Zhuravlova was a chair of the research work of the department. From 2012 was working as a Vice Dean of the foreign students' faculty at the LSMU continuing working as an assistant professor of the department of Operative Surgery and Clinical anatomy. In 2014 joined the Anatomy and Embryology department of Trinity School of Medicine (TSOM) (St. Vincent and the Grenadines). Dr. Zhuravlova is the Chair of the research committee of the school, author of 27 scientific articles and 15 patents. Received several teaching awards as the best term 1-2 professor.

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