EDUCATION RESEARCH DAY

Icahn School of Medicine at Mount Sinai

Institute for Medical Education

April 25, 2017

Sponsored by the Institute for Medical Education

Education Research Day 2017

Welcome to the Institute for Medical Education (IME) at the Icahn School of Medicine's fourteenth annual Education Research Day (ERD). It is exciting to see the breadth of innovative medical education scholarship developed by our faculty, trainees, students and staff. Each year we welcome an expanding group of educators from all disciplines and levels of training. We are proud to display the excellent work being done in education research at the Icahn School of Medicine at Mount Sinai and our affiliate institutions.

There are three goals for ERD:

1. To highlight and disseminate the educational research and innovative curriculum development at Mount Sinai and its affiliate institutions.
2. To provide a forum for educators to learn from each other and collaborate.
3. To prepare authors for regional and national presentation and dissemination of their scholarly educational work.

All submitted abstracts were reviewed by a selection committee. Abstracts were blinded and evaluated based upon established criteria for scholarship in education: Clear Goals, Appropriate Methods, Measures of Quality/Effectiveness, Significant Results and Reflective Critique. Innovation and impact of the project were also considered.

This year, five abstracts were chosen from 54 submitted to receive Blue Ribbons. Blue Ribbon Winners represent outstanding examples of educational scholarship.

In addition, we are very pleased to continue the "Facilitated Poster Walk and Discussion**"** at ERD this year. This began in 2013 to allow authors the opportunity to present their work, obtain feedback and gain valuable ideas from colleagues and peers in a structured manner. Abstracts have been organized into thematic groups and we have invited distinguished faculty to lead a discussion of the posters in a group with authors and visitors. Please review the schedule of these walks and join in to learn more.

We wish to thank the Selection Committee, the Department of Medical Education, and the authors who submitted their work. Congratulations to all of our authors for their dedication to education research and for sharing their innovative work with our community.

Reena Karani, MD, MHPE
Director,
Institute for Medical Education
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Robert Fallar, PhD
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Education Research Day Selection Committee 2017

Selection committee members did not participate in the discussion or voting for abstracts in which they were involved.

The 2017 Selection Committee:

Reena Karani, MD, MHPE, Committee Chair

Linda DeCherrie, MD

Carrie Ernst, MD

Robert Fallar, PhD

Andrew Goldberg, MD

Eric Goodman, MD

Joanne Hojsak, MD

Chang Park, MD

Lauren Peccoralo, MD, MPH

Jonathan Ripp, MD

Rainier Soriano, MD

Christopher Strother, MD

David Thomas, MD, MHPE

This year, 54 abstracts were submitted by faculty, students, staff and house staff across the Health System.

All abstracts were reviewed by the ERD Selection Committee. Of the 54 submissions, five abstracts have been awarded Blue Ribbons as outstanding examples of educational scholarship.

Please join us congratulating the 2017 Blue Ribbon recipients:

Abstract #43
Intervention to Reduce Folate Lab Testing
John Di Capua, Irene Lee, Rena Mei, Sukrit Narula, Sarah Zarrin, Hyung Cho, Celine Goetz

Abstract #1
Preseason Pediatrics: An Interactive Preclinical Curriculum Enhances Knowledge and Skills in Medical Students
Benjamin M. Laitman, Alefiyah Malbari, Suzanne Friedman, Scott Moerdler, Samuel Kase, Kathleen Gibbs

Abstract #23
Goals of Medical Students Participating in Scholarly Concentration Programs
Karen Zier, Kurt Alberson, Vineet Aurora, Rachel Wolfson

Abstract #49
Ballistic Gelatin Training Models versus Human Models for the Training of Emergency Medicine Resident Physicians in the Sonographic Evaluation of Deep Vein Thrombosis
Turandot Saul, Michael Doctor, Patrick Olivieri, Gabriel Rose, Nadia Baranchuk, Ryan Tansek, Aaran Drake

Abstract #35
Residents' Perceptions of Inappropriate Consults: Expectations of Expertise among Medicine and Neurology Residents
Charles Sanky, Eric Bortnick, Stephen Krieger

Education Research Day 2017 Itinerary
April 25, 2017
Guggenheim Pavilion Atrium

10:00 – 11:00 am	**Rob Fallar, PhD** Assessment (posters 1 – 5)
10:30 – 11:30 am	**Leora Mogilner, MD** Community Health (posters 6 – 10)
11:00 – 12 noon	**Andrew Goldberg, MD** Professional Development I (posters 33 – 37)
11:00 – 12 noon	**David Muller, MD** Professional Development II (posters 38 – 42)
11:30 – 12:30 pm	**Reena Karani, MD, MHPE** Curriculum: UME I (posters 23 – 26)
12 noon – 1:00 pm	**Peter Gliatto, MD** Curriculum: UME II (posters 27 – 29)
12 noon – 1:00 pm	**Christopher Strother, MD** Simulation (posters 49 – 54)
2:00 – 3:00 pm	**David Thomas, MD, MHPE** Curriculum: GME I (posters 11 – 16)
2:00 – 3:00 pm	**Dennis Chang, MD** Quality Improvement (posters 43 – 48)
2:30 – 3:30 pm	**Kaushal Shah, MD** Curriculum: GME II (posters 17 – 22)
3:00 – 4:00 pm	**Renee Bischoff, MPH, LMSW** Global Health (posters 30 – 32)

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ASSESSMENT

POSTERS 1 – 5

ABSTRACT #1

Preseason Pediatrics: An Interactive Preclinical Curriculum Enhances Knowledge and Skills in Medical Students

AUTHORS: Benjamin M. Laitman, Alefiyah Malbari, Suzanne Friedman, Scott Moerdler, Samuel Kase, Kathleen Gibbs

Purpose: Medical students have limited preclinical exposure to pediatrics. A needs assessment of former graduating medical students at our institution led us to create an optional preclinical curriculum for first year medical students called “Preseason Pediatrics” (PSP). This 6-month curriculum teaches pediatric-specific knowledge and clinical skills, consisting of monthly resident-led didactic sessions followed by complementary resident-mentored clinical experiences. We questioned how this preclinical pediatrics curriculum impacts student knowledge, perceived skills, and attitudes (KSA) regarding clinical performance, hypothesizing that there would be improvements in KSA of students who participated in the curriculum. If successful, such a curriculum could be replicated and utilized at other institutions.

Methods: Participants completed a survey prior to and upon completion of PSP. Knowledge was assessed with multiple-choice questions pertaining to each topic covered in PSP (Newborn exam, Development, HEENT, Nutrition, and Dermatology). Perceived skills were assessed with a 5-point Likert scale ranging from not at all (1) to extremely (5) for skills taught. Skill maintenance was assessed with a newborn objective structured clinical exam (OSCE) using a validated checklist 6 months after PSP completion for the most recent cohort. Students beginning their pediatric clerkship also completed a survey, comparing students who did and did not complete PSP using the same 5-point Likert scale as above. Differences between correct responses before and after PSP were analyzed with Fisher’s exact test. Comparison of Likert scores was assessed using Mann-Whitney non-parametric t-tests. $p<0.05$ was considered significant.

Results: Over 3 years of the course (2014-2016), 119 first-year medical students participated. Percent correct scores on pediatric knowledge increased in 4/5 topics covered, and students perceived an increase in their pediatric skills in all domains of the course ($p<0.001$). 86.9% (n=86/99) of students also reported feeling more prepared for the pediatric clerkship. Overall, 94.0% (n=93/99) would recommend the PSP experience to other students, with 68.7% (n=68/99) wanting to participate in a 2nd year continuation of the course. 9 students from the most recent cohort (n=40) completed the OSCE, and of them 8 were assessed as competent (passing score was 60/90, average score 68.9/90). Third year students who participated in PSP reported higher comfort with pediatric patients prior to their clerkship ($p=0.009$).

Conclusion: PSP is a successful novel preclinical program introducing students to clinical pediatrics. These first three cohorts demonstrated that didactics paired with resident-mentored clinical experiences improves pediatric knowledge, clinical skills, and perceived clerkship preparedness. Students may academically and professionally benefit from this early exposure to pediatrics. Future work includes expanding PSP to include skills utilized in the pediatric clerkship and beyond, and assessing the impact of the course on clerkship performance and career choices.

ABSTRACT #2

Resident Leaders: Self-Assessment of Trauma Team and
Code Team Leadership Performance Compared to Expert Assessment

AUTHORS: Suzanne Bentley, Anisha Lashkari, Stuart Kessler, Alex Manini

Purpose: Team dynamics are an integral part of patient care, especially in high acuity settings like caring for victims of trauma or cardiac arrest. While Advanced Trauma Life Support (ATLS) and Advanced Cardiovascular life support (ACLS) remain the standard protocol for trauma and cardiac arrest education, there is little emphasis on teamwork skills and leadership. Valid self-assessment is recognized as fundamental to continuing professional competence and development of life-long learning and improvement practices but is an understudied skill for development of medical team leaders. Previous study of resident cardiac arrest team leaders demonstrated that self-assessed values of confidence as team leader did not correlate with actual leadership skills. The purpose of this project is to compare resident emergency medicine (EM) trauma team and code team leader self-assessed performance to assessment of their performance by supervising attending EM physicians. The objective is to identify areas of differing perceptions of performance in order to elucidate deficiencies in leadership skills.

Methods: Convenience sample survey of 38 paired trauma team leader assessments and 34 paired code team leader assessments. All paired assessments were of resident leader self-assessment vs. attending physician assessment of the leader. Survey items were comprised of questions from Team Stepps leadership survey and scored on Likert scale of 1-5 with 1 representing “very poor” and 6 representing “superior”.

Results: There were no categories in which leader self-assessment was lower than attending assessment of the leader, for either trauma team or code team leader assessments. There were areas of significantly higher scores for both trauma and code team leader reporting compared to attending physician assessment in the following areas: overall team leader performance (4.8 vs. 4.36, $p<0.01$), leader maintains a bird’s eye view (4.9 vs 4, $p<0.01$), use of closed loop communication (4.3 vs 3.7, $p=0.02$), use of effective interpersonal communication skills (5.1 vs 4.6, $p=0.03$), and leader delegated tasks clearly and appropriately (4.8 vs 3.8, $p<0.01$). Trauma team leaders self-scored significantly higher on item: leader identified and treated acute medical problems (4.7 vs 4.1, $p<0.01$) while code team leaders self-scored significantly higher on item: leader discussed a brief differential with the team (4.6 vs 3.9, $p<0.01$).

Conclusion: While the trauma team and code team leader must be expert in the diagnosis and treatment of the patient, he or she must also excel at directing and being responsive to other team members. Deficits in leadership performance as assessed by expert physicians, as well as differing areas of assessment between self and expert assessment, can be utilized as a novel feedback tool for team leaders and may be used to inform specific areas of trauma team and code team leadership education in the future.

ABSTRACT #3

What Makes A Good Endoscopic Teacher? A Qualitative Analysis

Authors: Kamron Pourmand, Brijen Shah

Purpose: To be prepared for independent practice, gastroenterology fellows must learn to perform a variety of endoscopic procedures. Learning and teaching endoscopy are both complex tasks, yet few studies describe effective endoscopy teaching practices. Prior studies have largely focused on the perspectives of supervising physicians rather than fellows. In this qualitative study we sought to describe endoscopic teaching behaviors and their impact on fellows' perceptions of learning.

Methods: 15 gastroenterology fellows provided voluntary anonymous feedback on their supervising physicians during EGD and colonoscopy encounters between March 2016 and October 2016. Preprinted cards were completed at the conclusion of procedures to document behaviors that fellows perceived as enhancing or hampering the learning experience. Inductive analysis of written comments was performed by the investigators. Codes and themes were developed upon inter-rater agreement and assigned positive or negative valence.

Results: 187 individual teaching behaviors were identified from 15 fellows who worked with 30 supervising physicians. 25 unique behaviors were identified and organized into 7 themes: Learning Environment, Autonomy, Teaching, Communication, Coaching, Feedback, and Professionalism. The most common themes identified in the cohort involved the Learning Environment in 25% (46/187), Autonomy in 21% (40/187) and Teaching in 21% (40/187). The most frequent behavior codes were Autonomy in 20% (38/187), Communication in 11% (20/187), and Involvement in 9% (17/187). 143 (76.5%) behaviors were reported as beneficial, while 44 (23.5%) were reported as hampering the learning experience. Behaviors within the theme of Teaching were most likely to be perceived as beneficial by fellows (37 of 40, 92.5%), while behaviors within the themes of Professionalism (5 of 10, 50%) and Communication (8 of 20, 40%) were most likely to be perceived as hampering learning.

Conclusion: We identify a thematic categorization to endoscopic teaching behaviors that could be applied as a formative tool, such as a feedback checklist for faculty. Our data suggest that the learning environment and perseveration of autonomy were important to trainees, as these were the most common theme and behavior code respectively. Understanding the factors behind the learning environment and how this relates to learner autonomy may assist in faculty development to enhance the learning experience for fellows.

ABSTRACT #4

Opportunities for Peer Learning: Assessment of Group Exercise and Student Participation

Authors: Nitin Chopra, Aishwarya Raja

Purpose: To hone their interviewing and physical examination skills, medical students need practice. This practice begins in earnest during third-year clinical rotations, but the Icahn School of Medicine at Mount Sinai provides opportunities to craft these skills even earlier through its "Art and Science of Medicine" (ASM) curriculum, which exposes students to real and standardized patients during the first two years of school. There is yet another resource that students have unlimited access to from day one: each other. The utility of learning from one's classmates, however, is only as good as the willingness of students to help each other and is partly influenced by curricular opportunities for doing so. Our aim is to assess participation in a structured, physical exam exercise among students.

Methods: This was a retrospective cohort study assessing participation in a one-time, dilated fundus exam exercise among pairs of students in the Class of 2019 at the Icahn School of Medicine at Mount Sinai. On February 24, 2016, in their ASM course, students partnered up and were asked to dilate one eye each to practice visualizing the retina and related structures. On February 25, 2016, one individual from each of 18 small groups was asked how many students dilated or did not dilate their eye during the prior day's exercise. Student names were not relayed. Students were not aware that participation would be examined ex post.

Results: All students in the Class of 2019 were accounted for (n=140). 33 students (24%) did not participate in the exercise, although there were large differences between groups. Out of 18 groups, 12 (66%) had at least one student who did not participate. Two groups had seven out of eight students choosing not to dilate his or her eye, accounting for 14 (42%) of the 33 students who did not participate. Anecdotal feedback suggested differences in communication from group preceptors: some students did not know what to expect ahead of time and were not prepared to dilate their eyes, while others felt that they had no choice but to dilate.

Conclusion: We find that not all peer learning exercises are fully embraced. Patients do medical students a great service when they allow us to practice our imperfect skills on them; it is incumbent upon medical education to explore opportunities for peer learning that do not rely on this generosity, and it is equally incumbent upon students to avail themselves of these opportunities. This preliminary study is limited in that it samples from just one class and one activity; it is further limited in that it is unclear if the lack of participation was due to structural issues, low student enthusiasm, or other factors. Further research is needed to explore these important questions.

ABSTRACT #5

Skin to Skin in the NICU - A Study of Pediatric Resident Knowledge, Attitudes and Practices

Authors: Rochelle Sequeira Gomes

Purpose: The purpose of this study was to describe knowledge, attitude and practices (KAP) among pediatric residents pertaining to skin to skin care (SSC) of newborns in the NICU by means of a survey; to compare responses across the 3 years of residency; and to ascertain if there was a favorable change in KAP scores among residents who had attended didactics on skin to skin care.

Methods: A survey comprising of 9 questions was answered by pediatric residents belonging to two New York teaching hospitals. Each respondent was scored, with points allotted for responses indicating knowledge, as well as favorable attitude and practices with regards to SSC, as shown in table 1. Comparisons were made between mean scores for first, second and third year residents. Comparison was also made between mean scores of residents who reported having had teaching/attended didactics on SSC and those that did not. Student t test and one-way Anova were used to compute statistical significance of differences in mean scores across the groups.

Results: 40 residents took the survey of which 9, 15, and 14 belonged to 1, 2 and 3 years of residency, respectively. 3 respondents were excluded from scoring analysis due to incomplete responses. 16 residents reported having had teaching/attended didactics on SSC. There was no significant difference between mean KAP scores across the 3 years of residency – 4.4 + 1.5, 4.5 + 1.8 and 4.4 + 1.7 for 1, 2 and 3 year residents respectively (P= 0.99). No change in mean KAP scores were noted between residents who reported teaching (4.44 + 1.7) and those that reported no teaching – 4.41 + 1.7 (P = 0.96). The percentages of residents that identified the benefits of SSC were 95% (breast feeding), 55% (decreased infections), 60% (decreased mortality), and 53% (better brain function in infancy). The most common barriers to provision of SSC identified were clinical instability of the baby (78%), lack of parental knowledge (75%) and parental inability to spend time in the NICU (65%). 63% of residents believed that holding or cuddling the baby was as beneficial as SSC. Discussing SSC with the mother with positive re- enforcement was the most common measure residents used to increase SSC. 58% of residents believed that the optimum duration of SSC was about 4 hours a day, while 24% identified the need for SSC for more than 20 hours a day. The majority of residents (70%) reported offering SSC less than 50% of the time.

Conclusion: This study demonstrates a knowledge gap, as well as some unfavorable attitudes and practices among pediatric residents with regards to skin to skin which were not diminished with duration of residency training or didactics.

COMMUNITY HEALTH

POSTERS 6 – 10

ABSTRACT #6

Perspectives on Segregated Care: Training within a Segregated System

Authors: Hazel Lever, Denisse Rojas Marquez

Purpose: This project aims to provide medical school students with an understanding of the segregated care system at Mount Sinai Hospital (MSH). Patients at MSH have differential access to care based on insurance type, whether Medicaid or privately insured. Generally, Medicaid patients receive care at Internal Medicine Associates (IMA) whereas privately insured patients receive care at Faculty Practice Associates (FPA). We term differential access to care by insurance type as "segregated" in contrast to "integrated" where all patients have access to the same doctors, in the same location, and at the same times of operation. In segregated care, patients can experience different levels of care coordination, quality of care, and access to facilities. Training in a segregated system has consequences to students who are adapting to hospital norms, learning medical culture, and negotiating personal values in light of discriminatory practices.

Methods: The authors interviewed 10 department leaders at MSH. The questions centered on the participant's perspective on segregation care practices and the hospital leadership's efforts to integrate departments. The department leaders were identified by snowball sampling. We conducted 10 in-depth interviews for 1 hour each in a semi-structured format in May and June 2016. Interviews were transcribed and coded for thematic findings. The interviews are all anonymous for participant confidentiality.

Results: Quality of care: In many departments, residents and fellows only provide care at IMA, and only attending physicians provide care at FPA; Awareness: Both department leadership and patients are aware of the separate, two-tier system of care delivery; Resistance: Biases about patients hinder integration efforts, along with a desire not to disrupt hospital norms; Challenges: Lack of physical space and financial concerns, including high value placed on profit, were key challenges to integrating facilities; Reasons for Integration: Although financial incentives have driven recent integration projects, a duty for health equity and community service are additional reasons cited for integrating departments; Solutions: Department heads believe integration can happen in a stepwise manner--department by department--and top-down, with hospital system leadership driving the integration. A shift in culture that currently upholds segregated care is also necessary for integration to be successful.

Conclusion: Segregated care is central to how patients at MSH experience care. Training within a segregated system has numerous impacts on medical students, including: normalization and acceptance of segregated systems; creation of disconnect between classroom-taught models of health equity and realities of the hospital; and acceptance of the biases inherent in segregated systems, notably that healthcare is a commodity rather than a right, and that it is acceptable for poor and, by proxy, racial minorities to receive a different level of care. Segregated systems impact what kinds of populations are seen as worthy of training on--particularly poor patients and racial minorities. Students can engage in self-reflection about segregated care practices through clinical settings, patient presentations, and personal experiences and can engage in activism with student, local, and state level groups to promote awareness and advocate for change.

ABSTRACT #7

Should I Mind My Own Business? Impact of an Educational Intervention and Standardized Screening Tool to Address Social Determinants of Health during Well Child Visits

Authors: Allison Becker, Matthew Harris, Mohammad Bakir, Cynthia Katz

Purpose: As highlighted by the 2013 AAP policy statement, recognizing and addressing social determinants of health (SDH) is crucial to provide high quality comprehensive care for children and families. It is therefore essential for pediatricians to be knowledgeable about SDH, and discussion of SDH should be incorporated into residency training. In fact, the ACGME and APB's Milestone Project seeks to develop an Entrustable Professional Activity focused on SDH to help ensure residents are well trained in this area. Whereas SDH have likely been incorporated into U.S. medical school curricula, the majority of our pediatric residents are international medical graduates (IMGs) and informally report unfamiliarity with the concept and components of SDH. Therefore, we suspect that the high-risk children and families seen in our resident clinic are not being effectively screened or referred for SDH, resulting in unmet needs impacting health. Objectives: To evaluate the impact of an educational intervention on 1) residents' knowledge, skills and attitudes toward SDH; and 2) social work referrals generated by residents.

Methods: Our educational intervention consists of small group interactive didactic sessions discussing topics including: an overview of SDH, effects of SDH on health, toxic stress in children, and what physicians can do to help at-risk families. Residents will also be educated on the use of the modified WE CARE survey as a standardized tool for SDH screening. The pre-intervention evaluation tool includes questions about knowledge of SDH, as well as attitudes and current practices of SDH screening. A post-intervention survey will evaluate knowledge attained from the didactic sessions, as well as impact on attitudes and practices. Additionally, number and type of social work referrals generated from resident clinic will be monitored and compared to a pre-intervention baseline. This study has been exempted by the IRB.

Results: Descriptive statistics will be used to compare the two groups of surveys (pre-test and post-test) to evaluate the impact of the educational intervention on resident knowledge of SDH as well as effect on attitudes and practices of SDH screening. Baseline data show 86 total social work referrals over a 6 month period (9/1/15-2/25/16). The breakdown of referrals by percentage was: mental health (47), entitlements (10), education (10), housing (10), and childcare (6), legal services (6), insurance (5), miscellaneous (6).

Conclusion: We anticipate that our intervention will enhance IMG resident understanding of SDH and appreciation of their significant impact on children's health. Additionally, whereas our prior social work referrals primarily addressed mental health needs, an increased awareness and improved SDH screening will likely result in more varied referrals (education, housing, food insecurity, employment, childcare, etc.) As residents address a wider variety of unmet psychosocial needs, they will better serve our patients and families.

ABSTRACT #8

Creation and Implementation of the Community Resource Education and Training Exercise (CREATE) at the Mount Sinai Adolescent Health Center

Authors: Catherine Crawford, Janet Lee, Sari Bentsianov, Michael Guyton, Leslie Rosenthal, Caroline Barangan

Purpose: Online, mobile, and community resources are valuable adjuncts to patient care. Providers who understand the breadth of resources within their communities can offer more informed recommendations to patients who require services outside of the scope of their primary provider. We created and implemented the Community Resource Education and Training Exercise (CREATE) program to (1) provide medical trainees rotating at the Mount Sinai Adolescent Health Center (MSAHC) with the opportunity to learn about local, online, and mobile resources that are available to adolescents served by the center, and (2) create a comprehensive list of adolescent-friendly resources related to mental health, nutrition, sexual health, trouble at home, substance abuse, and healthy lifestyles for providers at the MSAHC.

Methods: The CREATE curriculum was designed during summer 2016 to educate residents, fellows, and medical students rotating at the AHC. The primary method of instruction involves case scenarios of 'typical patients' seeking care at the MSAHC related to mental health, nutrition, sexual health, trouble at home, substance abuse, and healthy lifestyles. Trainees are assigned one case and have approximately one week to educate themselves about the community, online, and mobile resources required by the patient described in the scenario. Following completion, participants debrief about their experience with MSAHC fellows and other trainees through a 10-15 minute presentation. They also are asked to complete a 10-15 minute survey that evaluates their learning, requests feedback about the curriculum, and allows them to list the resources they utilized during the exercise. This information is compiled and made available to providers at the MSAHC.

Results: The CREATE program was successfully launched as a pilot program at the MSAHC in January 2017. One trainee has completed the program and was assigned the Sexual Health CREATE case. After completion, the participant reported increased confidence in their ability to advise an adolescent on the process of obtaining Plan B and free contraception in New York City. They also reported an improved understanding of the barriers that adolescents face while seeking such resources. We are in the process of administering the CREATE program to a new cohort of trainees, and will continue to collect data throughout the semester.

Conclusion: Through this curriculum, trainees and providers become better informed about the benefits, downsides, and barriers associated with the resources available to adolescents in our community. By enabling trainees to immerse themselves in the experience of seeking online, mobile, and local resources, the CREATE program forms the basis for providing more informed, personalized care to MSAHC patients.

ABSTRACT #9

Improving Breastfeeding by Increasing LATCH Scores – Efficacy of a Resident Initiative

Authors: Carolina Zenobi, Lawrence Noble

Purpose: There is limited research to evaluate resident interventions to increase breastfeeding. The LATCH score is a useful to tool to target short interventions as it assess both maternal and infant variables and defines areas that need intervention. The LATCH score has also been shown to predict breastfeeding duration and exclusivity. We prospectively analyzed the efficacy of a pediatric resident initiative to increase breastfeeding success, as measured by the LATCH score.

Methods: Mothers of term healthy newborns delivered to the well-baby nursery during the months of July-August 2016 were eligible for the study. Baseline demographic information was collected on each enrolled mother. A resident measured the pre-intervention LATCH score. The intervention consisted of a 10 minutes session with each mother addressing breastfeeding concerns and/or issues noted during the pre-intervention LATCH evaluation. A post- intervention LATCH score was recorded prior to infant's discharge on infant's day of life 2-3. Paired t test was used to compute the statistical significance of the results.

Results: 31 participants were included in the study. 55% of the mothers were Latin American, mean age was 29 ±5 years, 65% had previously breastfed another child and 87% had been breastfed themselves by their mother. Paired t- test analysis showed improvement in the post-intervention LATCH score in total score (9.3 vs. 7.8, p=.000), as well as 3 sub scores, latch (1.8 vs. 1.5, p=.01), audible swallowing (1.8 vs. 1.5, p=.001) and hold (1.8 vs. 1.4, p=.000).

Conclusion: A simple 10 minutes pediatric resident targeted intervention significantly increased LATCH scores in breastfeeding mothers. Pediatric residents would benefit from knowing how to use such a tool.

ABSTRACT #10

Implementing a Medical Student Mentor System to Improve Adolescent Diabetes Care

AUTHORS: Bonnie Sklar, Vivienne Cabreza, Anna Aluf, Greeshma Rajeev-Kumar, Helaine Ciporen, Christopher Romero

Purpose: The management of children with diabetes requires both medical and psychosocial support in order to achieve successful glycemic control. Non-adherence to treatment is a major challenge for adolescent patients. Previous studies have showed improved medication adherence, diet, exercise, and glucose control with interventions such as social support and financial incentives. The Diabetes Mentorship Program was established to improve diabetes care among adolescent patients using a medical student mentor support system to assist in identifying barriers that prevent optimal diabetes care. This program was also designed to supplement the medical school curriculum through long-term patient interaction, as well as training in diabetes pathophysiology and management.

Methods: Eight patients with Type 1 and Type 2 DM were paired with 8 medical student mentors over 6 months. Mentors received training in diabetes pathophysiology, clinical management, and behavior counseling from a team of physicians, a diabetes nurse practitioner, and a social worker. Mentors and patients communicated primarily by phone, and mentors attended clinic visits when possible. The following patient data was obtained: age, sex, type of diabetes, duration of diabetes, medication, HbA1c, co-morbidities, and Diabetes Distress Screening (a validated mental health assessment). Additionally, medical student mentors completed a questionnaire after 6 months to assess the impact of the program on their medical education.

Results: Eight patients (5 female and 3 male) participated in the program. The average patient was 13.4 years old (range 11-17), with an average duration of diabetes of 5 years (range 1-11) and HbA1c of 10.43% (range 6.1-14.6). Five patients had Type 1 DM and 3 had Type 2 DM. The preliminary average DDS score for 6 out of 8 patients was 2.81 +/- 1.39. A DDS score of 3 or higher suggests moderate distress that warrants clinical attention. Three patients in the program scored greater than 3. Seven medical students completed the follow-up mentor survey. A majority of students agreed or strongly agreed that participation in the program: enriched their medical school curriculum through increased patient contact (100%), improved their knowledge about clinical management of diabetes (86%), improved their knowledge about diabetes pathophysiology (57%), increased their comfort with presenting and discussing patient cases with a clinical team (71%), increased their exposure to pediatrics (86%), increased their interest in a career in pediatrics (57%), increased their exposure to the field of endocrinology (71%), increased their interest in a career in endocrinology (43%), and increased comfort with behavioral counseling skills (66%).

Conclusion: A majority of student mentors find the Diabetes Mentorship Program to effectively supplement their medical school curriculum through one-on-one patient interaction and working with a multi-disciplinary diabetes team. Through this program, medical students have gained exposure to endocrinology and pediatrics, as well as the knowledge required to support pediatric patients with diabetes. Going forward, students will use objective data to determine if diabetes care or DDS score have improved for their patient as well as what impact their role can have in a patient's ability to improve their glycemic control.

CURRICULUM: GME I

POSTERS 11 – 16

ABSTRACT #11

Program-Level Predictors of Trainee and Faculty Scholarly Productivity in Graduate Medical Education

Authors: Anthony H. Bui, Scott H. Barnett, I. M. Leitman

Purpose: The Accreditation Council for Graduate Medical Education's (ACGME) Common Program Requirements requires that residents participate in scholarly activity. The faculty must establish and maintain an environment of inquiry and scholarship with an active research component and some members of the faculty should also demonstrate scholarship. However, the characteristics of training programs that may facilitate or hinder scholarly productivity are not well understood. The aim of this study was to identify training program-level factors associated with resident and faculty scholarly productivity.

Methods: Scholarly activity data and the 2015-2016 ACGME Resident and Faculty Surveys were obtained for all programs sponsored by the Icahn School of Medicine at Mount Sinai. To measure scholarly productivity, each of the following was granted one point: PMID publications (max of three for residents, four for faculty); presentation at one or more local, regional, or national meetings (both groups); publication of one or more book chapters (both groups), presentation of at least one lecture (e.g., grand rounds) for residents, participation in funded basic or clinical research for trainees or leadership role in at least one grant for faculty, and education service on a national committee for faculty. For each program, the average number of points earned by trainees and by faculty were calculated separately. The ACGME survey data was then matched to scholarly productivity by program. A linear regression was performed, comparing mean trainee scholarly productivity by program with program size (number of residents), setting (university hospital, university affiliated, or community sponsored), length in years, and type (residency or fellowship), and average trainee ratings of duty hours, faculty, and satisfaction with scholarly opportunities as the predictors. A similar regression was performed for faculty scholarship, with number of faculty, program setting, length, and type, average faculty ratings of supervision and teaching, and percent of faculty that worked on a scholarly project with trainees as the predictors.

Results: For the 2015-2016 academic year, trainee scholarship was analyzed in 91 residency and fellowship programs; faculty scholarship was analyzed in 122 programs. Positive predictors of trainee productivity included program length (Beta=0.15, p=0.08) and ratings of faculty (Beta=0.65, p=0.08). Negative predictors of trainee productivity included larger program size (Beta=-0.02, p=0.01), community sponsored program setting (Beta=-0.45, p=0.02), and residency training level (compared to fellowship; Beta=-0.40, p=0.09). For faculty productivity, proportion of faculty working on a scholarly project with trainees was associated with increased mean productivity (Beta=1.20, p=0.08). Negative predictors of faculty productivity included program size (Beta=-0.03, p=0.05), community program setting (compared to academic; Beta=-2.03, p<0.001), and satellite program setting (compared to academic; Beta=- 1.38, p<0.001).

Conclusion: Community sponsored training programs were associated with less scholarly productivity for both trainees and faculty. Additionally, programs in which trainees rated their faculty highly, and in which more faculty reported working with trainees on scholarship, appear to produce more scholarly activity.

ABSTRACT #12

Talking About Palliative Extubations: See One, Do One, Teach One Just Isn't Enough

Authors: Megan E. Rau, Emily Chai

Purpose: Palliative extubation is the removal of mechanical ventilator support when, based on an individual's goals of care, it is perceived as prolonging the natural dying process. To provide competent and compassionate care for family members before, during and after a palliative extubation, physicians must provide a clear explanation of this complex procedure. There is currently no step-by-step educational protocol, strategy or framework for discussing the issues of palliative extubation. To help guide the development and evaluation of such a communication protocol, a pre- and post-survey of learners was conducted at a large tertiary care teaching hospital.

Methods: During orientation for Geriatric and Palliative Care fellows at Mount Sinai Hospital, a pre-intervention survey was distributed to assess: (1) prior knowledge and training about palliative extubations; (2) levels of confidence in leading palliative extubations; and (3) desire to fill existing knowledge gaps. A palliative extubation communication framework was then developed and presented in a lecture and discussion format. The framework consisted of a step- by-step approach to discussing the palliative extubation procedure with patients and families including examples of phrases to use. Additionally, the medications and clinical steps used to perform the procedure were described. Detailed handouts of the palliative extubation communication framework were disseminated to the fellows as a reference. Post-intervention evaluations were distributed afterwards. All study results were confidential and data was de-identified.

Results: Prior to fellowship training, all 20 fellows were aware of the concept of palliative extubation, although 35% knew palliative extubations by a different name. 70% had been present during a palliative extubation, but only 43% had led a palliative extubation procedure. A strikingly low 5% had formal training in palliative extubations and only 35% had informal training. 30% "strongly agreed" or "generally agreed" to the statement "I feel confident about leading a palliative extubation". 75% "strongly agreed" they wanted to learn more about palliative extubations. After the educational intervention, 50% "strongly agreed" or "generally agreed" to the statement "I feel confident about leading a palliative extubation". 80% believed they would "frequently" or "very frequently" use the palliative extubation communication framework in future practice.

Conclusion: Clear and compassionate communication is the foundation of high quality, patient-centered medicine. Physicians require education and practice to master their communication skills, especially in potentially distressing circumstances such as palliative extubations. Our results suggested a lack of knowledge regarding communication about palliative extubation; identified the desire for increased knowledge on this topic; demonstrated that communication training can increase a learner's confidence in leading palliative extubations; and confirmed significant numbers of learners intend to incorporate their new knowledge into practice. Future directions include evaluating if clinical behaviors were changed as learners intended through clinical observation along with dissemination of the palliative extubation communication framework to fellowship programs including both palliative care and sub- specialties such as critical care.

ABSTRACT #13

Dissemination of a Standardized, Validated Anesthesiology Curriculum to Residency Programs across the Country

AUTHORS: David Berman, Adam I. Levine

Purpose: Among the most stressful periods in an anesthesiology resident's career is the beginning of the introduction to residency; this period is marked by a steep learning curve, the introduction of an entirely new set of agents and techniques and the first time residents will be left alone with a critical patient. There is no nationally standardized curriculum, predisposing residents to have varied experiences depending on their attending experiences and case mix at their institution. To encourage a more standardized approach, our team built an iBook curriculum with the aim of covering the basics of anesthesiology. This was largely successful, and our iBook was given significant acclaim at numerous national meetings. Our aim was to use the curriculum we have designed, validated and presented to improve anesthesiology education.

Methods: Our team had previously created a curriculum using the iPad to encourage resident self-education. This resource was hand-coded from scratch, covering the basics of anesthesiology using our curriculum as a framework. This resource contains interactive, rich media allowing for self-evaluation and further study and is flexible to the learner. It includes a number of different features to allow residents to quiz themselves and review material. In total, the resource contains greater than 200 pages of original content, over 180,000 lines of code and a number of novel features. It was disseminated to our residents in 2015 with excellent results, and was highly acclaimed for its ease of use. Our team was able to track usage of the iBook throughout the project, and residents used the iBook for approximately 31 hours over the first month of training.

We contacted residency program directors at a number of institutions around the country and presented our work at the annual residency program directors' meeting, inviting programs to use our iBook free of charge. Our aim was to distribute the iBook to the residents for their use, and to encourage them to pass the resource onto others if they found it useful. We requested that program directors provide us with de-identified data in order to provide us with objective results, as well as provide their residents a survey regarding user experiences.

Results: Residents averaged approximately 29 hours of studying in the first month of residency and reported a high satisfaction with the iBook. We are currently awaiting objective data (in-training exam results and anesthesia knowledge test scores) as an objective measure of comparison, but subjectively the residents rated this resource highly and reported they wanted more resources of the sort. Most importantly, residents were encouraged to pass the iBook onto colleagues at other programs who they thought would benefit from the iBook. Our initial rollout was phased to 7 programs for approval, but by the end of July over 30 programs had active users, using an average of 1 hour per day per user.

Conclusion: The presence of an iBook curriculum for the beginning of residency served to augment clinical learning, and was favorably received by residents at numerous training programs around the country. While objective data regarding the clinical utility of the iBook is still being collected, our primary objective of dissemination was a success which far surpassed our initial expectations.

ABSTRACT #14

Understanding the Bioethics Educational Needs of Residents and Fellows

Authors: Cindi Yim, Rosamond Rhodes, I. M. Leitman, Robert Fallar

Purpose: Formal training in ethics is progressively becoming a part of graduate medical education programs due not only to requirements from the Accreditation Council for Graduate Medical Education (ACGME) but also a growing interest in professionalism training, of which ethics is a critical component. Ethics training during residency is variable amongst institutions, and the bioethics education needs of trainees are not well known. More data is necessary to shape educational planning. Thus, the objective of this study was to evaluate the bioethics educational needs of residents and fellows at a large urban health system by surveying them about their bioethics training before and during residency/fellowship.

Methods: A seven-question survey asking about prior exposure to common ethical issues was sent to 1083 residents in a Graduate Medical Education Program. Their results were analyzed with descriptive analytics.

Results: A total of 238 residents responded (response rate 23%). Most responders were PGY-1s (35%) and training in internal medicine (39%). The most common topics on which they reported having received training were: knowing when it's acceptable to learn by training on a patient (72%), safeguarding confidentiality (71%), and disclosing level of training (66%). The least frequently reported topics of training in medical school were: determining limits to surrogate authority (27%), deciding when to call an ethics consult (27%), and determining which patient to treat first (33%). The most common topics that respondents received training on in residency were eliciting informed consent for treatment/procedures (84%), safeguarding confidentiality (81%), and responding to patient refusal of standard of care treatment (78%). The least frequently reported topics of training in residency were eliciting informed consent for research (52%), deciding when to call an ethics consult (53%), and determining limits to surrogate authority (55%).
Residents were asked to select up to five topics they wished to received training on, and the top five cited topics were deciding when to call an ethics consult (38%), resolving an ethical dilemma (33%), having end-of-life discussions (30%), determining when to treat over patient objection (29%), and assessing decisional capacity (28%). The least commonly selected topics for additional training by residents were safeguarding patient confidentiality (2%), eliciting informed consent for treatment/procedures (4%), and disclosing level of training (6%).

Conclusion: This study reveals a void in the ethics curriculum in medical education on key bioethical topics. Both determining limits of surrogate authority and deciding when to call an ethics consult were listed as topics that were not adequately addressed in medical school. Residents also showed an interest in receiving more training, specifically in knowing when to call an ethics consult. Results of this survey may guide program directors in structuring their ethics curriculum for residents.

ABSTRACT #15

Family Medicine Residents' Perspectives on the Flipped Classroom Model

Authors: Emma Makoba, Rachel Rosenberg

Purpose: In recent years, educators in the US have been embracing an innovative model of teaching called the Flipped Classroom. In this model, the instructional portion of the teaching session, which traditionally takes place in the classroom, instead takes place before the session via an online or video modality. Subsequently, the problem- solving portion of the teaching, which traditionally is accomplished through homework activities, takes place in the classroom. A large body of research in secondary education and medical schools shows that the flipped classroom can improve student engagement, test scores and learner satisfaction. There have been efforts to implement the flipped classroom in the post-graduate medical education setting in several specialties, but a review of the literature did not locate any research studies on using the flipped classroom model in Family Medicine Residencies. Before considering the implementation of the Flipped Classroom Model in a Family Medicine Residency, we wanted to ask: How do these adult learners think that the Flipped Classroom model would affect their learning? Are there ways in which we would need to tailor the model to meet residents' unique learning needs?

Methods: This qualitative, grounded-theory study used focus groups facilitated by the lead researcher using a semi- structured interview guide. Focus groups were held until data saturation was reached, after three separate focus groups with a total of 13 participants. Participants were Family Medicine residents from two different Institute for Family Health residency sites. Focus group sessions were recorded and transcribed, without using focus group member identifiers. Transcripts were coded separately by each author, then the authors met to reach consensus on codes and to identify themes.

Results: Four major themes emerged from the coded qualitative data of the focus groups: the role of 1) feelings and emotions, 2) variability of resident life, 3) importance of learning environment, and 4) multiple demands.

Conclusion: Our findings suggest that the resident life is defined by numerous competing demands. The data suggests that while the Flipped Classroom model has the potential to offer many benefits to resident education, it would have to be altered in order to accommodate the stressful, variable and demanding schedules of Family Medicine residents. The role that feelings and emotions play emerged as powerful and pervasive theme in the data. Many residents experienced feelings of shame and and anxiety surrounding their learning. Addressing and alleviating these negative feelings and emotions provides a compelling direction for future research.

ABSTRACT #16

A Novel Mobile Application to Facilitate the Urologic Robotics Curriculum

Authors: Daniel Sagalovich, Ashutosh Tewari, Jeffrey Stock

Purpose: With the widespread adoption of robotics by the urologic community, there have been concerns that residency training has been negatively impacted. Several professional bodies including the American Urological Association have called for the development of a robotics training curriculum. The University of Southern California has introduced a "robotics time-out" as a method of assignment for various portions of the case. We aimed to develop a mobile platform to facilitate the robotics time-out.

Methods: A mobile application (app) was created entitled "The Resident's Atlas of Urologic Robotic Surgery." This app is divided into chapters based on various robotic cases. Each chapter is further subdivided into major steps of the case which allow for resident annotation and education, including: free text for case notes, touch schematic drawings, file attachments (i.e. photos, PDFs), completion logs, confidence level scores, and surgical atlases authored by faculty. An anonymous survey was sent to 26 urology residents and fellows at our institution to gauge attitudes regarding the app.

Results: There were 24 responses to the survey (92.3%), 17 (73.9%) male, 6 (26.1%) female. The proportion of trainees stating they would use various app features included: 21 (87.5%) completion log, 16 (66.7%) surgical atlas, 14 (58.3%) case notes, 10 (41.7%) confidence level and 10 (41.7%) file attachment.15 trainees (62.5%) reported they would use the app always or most of the time, and 5 (20.8%) stated they would use it about half time the time. 20 trainees (83.3%) stated they would be more likely to complete every major step of a robotics case by the time they graduate residency using the robotics time-out and app.

Conclusion: The Resident's Atlas mobile app provides much needed structure and efficiency for a robotics curriculum. During the robotics time-out, a surgical assignment will be given to the resident based on the progress he/she has tracked through the app. Survey data demonstrates resident eagerness to use the app. Future directions include a video atlas and a collaborative atlas section (i.e. using a "wiki" model). Program directors may use data from this app to ensure the robotics curriculum is being adequately addressed. This free app is scheduled to go live in the Apple/Android app store in early 2017.

CURRICULUM: GME II

POSTERS 17 – 22

ABSTRACT #17

Outcomes of an Intensive Two-Week Teaching and Feedback Rotation for Internal Medicine Residents

Authors: Arielle L. Langer, Samuel Bernard, Rachel J. Bystritsky, Jeffrey Wessler, Melissa Bakar, Xenia Frisby, Athina Vassilakis, Joseph Tenenbaum, Beth Barron, Brian L. Block

Purpose: Many medicine residents pursue academic appointments, but have no direct instruction regarding core educational components of such careers: feedback and teaching. We developed a 2-week “Teach” rotation. During the rotation, senior residents give lectures, lead morning report, rehearse feedback skills daily, and teach exam maneuvers. Faculty observed all activities and provided immediate feedback. In this study, we sought to evaluate the efficacy of this new rotation.

Methods: We surveyed participating residents, interns, and reviewed evaluation completion rates.

Results: Of 26 residents who completed the rotation, 21 (81%) responded to the pre-rotation survey and 24 (92%) to the post-rotation and 6 month surveys. Teach residents reported increased confidence in all formats. Prior to the rotation, 14% felt ‘somewhat unprepared’ to become academic physicians compared to none afterwards. More residents felt there was time to give feedback daily after the rotation (81% versus 62%) though this decreased to 71% after six months. At 6 months, 63% of resident felt that the rotation had changed their practice. Interns who worked with Teach residents were more satisfied with the feedback they received than their co-interns who did not (92% vs. 63%). Seventy-five percent of interns agreed that the Teach resident provided helpful feedback, and only 16% felt this took up too much time. Residents who had done the Teach rotation were more likely to have completed evaluations (mean 82% versus 69%).

Conclusion: Providing senior residents with protected time for teaching and feedback was popular, improved confidence, and increased feedback for interns. Inclusion of feedback as a core educational skill and observation of didactics were vital components.

ABSTRACT #18

Assessing Medicine Interns' Knowledge and Perceptions Regarding Food Insecurity

Authors: Maria G. Chancay, Victoria Mayer

Purpose: Food insecurity, or the inability to be able to obtain enough food to not be hungry, has been associated with poor overall health, poor mental health, obesity, and chronic diseases. Among diabetics, food insecurity is associated with worsening glucose control. Given its impact on health, there is a need for medicine trainees to become familiar with food insecurity. Our aim is to assess incoming medicine interns' perceptions and knowledge of food insecurity and to ascertain whether an educational session increases recognition of food insecurity as an important social determinant of health.

Methods: The participants are first year internal medicine residents during their outpatient block. Interns complete a pre-intervention survey prior to the lecture. The survey assesses familiarity with the topic of food insecurity and perception of the impact of food insecurity on the health of diabetic patients. A newly added educational lecture is given, which outlines food insecurity as a social determinant of health and teaches interns how to briefly screen for it. This is followed by a post-intervention survey to assess changes in knowledge or attitudes about food insecurity and whether an intern would screen for food insecurity if a screening tool were available in the EMR. In the future, a third survey will be distributed to those who participated in the first two surveys, which will assess changes in knowledge or attitudes as first year of residency progresses.

Results: As of now, 47% of the intern class has participated in the study. 79% of these interns are familiar with the concept of food insecurity. 92% believe it is a very important factor in determining their patient's health and 96% believe this to be true in their diabetic patients. Despite this, only 46% believe it is very important to screen for food insecurity during a primary care visit. 46% report that it is somewhat important and 8% report that it is of little importance to screen. These numbers remained the same after the lecture although there was an increase in knowledge surrounding the topic (as measured by two knowledge questions). The majority of interns, 79%, would screen for food insecurity if there were a brief screening tool available in the EMR. The most frequently cited reason for not screening was lack of time.

Conclusion: Interns are familiar with the concept of food insecurity and recognize the importance it plays in the health of their patients, especially diabetics. Time constraints prevent many trainees from screening their patients and engaging them in discussion surrounding the issue. A greater emphasis should be placed on finding ways to implement screening rather than teaching the value of recognizing food insecurity. Possible mechanisms may involve ancillary staff or introducing return visits focused solely on health maintenance, and prioritizing screening for food insecurity.

ABSTRACT #19

More Knowledge, Less Stress: Educating Providers and Parents via the Mount Sinai Parenting Center Newborn Discharge Class

Authors: Blair S. Hammond, Aliza Pressman, Mariel Benjamin, Carrie Quinn, Gwen Raphan, Anne Martin, Shanna Kowalsky

Purpose: Pediatric residents during their well baby nursery rotation are expected to counsel new parents on common medical issues and parenting concerns before they leave the hospital with their newborns. Prior to this intervention, residents received no formal training on providing this critical information. In addition, parents generally wish to promote optimal early cognitive and behavioral development, but residents are not taught this and are unable to counsel on best parenting practices. Adult learning theory and time constraints suggested that these knowledge gaps be remedied by an experiential approach which would educate both parents and residents simultaneously.

Methods: The Parenting Center convened newborn nurses, a social worker, a developmental psychologist, a medical educator, an attending pediatrician, pediatric residents, and a research consultant to design a newborn discharge class. The group generated a facilitator's guide for residents, an information packet for parents, a video version of the class for parents unable to attend the class, and a standardized feedback/evaluation form for residents. The form rates residents' medical knowledge, knowledge about parenting practices that promote development, and ability to counsel parents effectively and with cultural sensitivity.

Results: We created and implemented a twice-weekly 1-hour newborn discharge education class. An on-line version is also available. The class is co-taught by a pediatrician, a nurse, and a social worker or developmental psychologist.
The class covers common parental concerns both medical and behavioral and also discusses parenting practices that promote early development such as effective child-directed speech and sensitive responses to infant distress. Parents receive a packet that includes all class content. Interns receive the facilitator's guide, observe a class taught by another pediatrician, and then lead the class themselves while being evaluated using a standardized scoring sheet.
Ten residents completed a retrospective pre-post survey of the learning intervention. Responses affirmed that residents gained new knowledge and applied it both in the well baby nursery and in their outpatient primary care practice, too.

Conclusion: We created and implemented a newborn discharge class that educates both parents and residents on common parenting concerns for newborns and on parenting practices that promote optimal cognitive and behavioral development. Both the parents' and the residents' responses have been overwhelmingly positive. This intervention is innovative in that it (1) provides an experiential learning opportunity for pediatric residents while meeting parents' needs, (2) includes parenting behaviors that promote optimal cognitive and behavioral development along with medical concerns, and (3) is interprofessional. Future research will test whether the class not only improves resident education but also enhances patient satisfaction and education, both of which are of great interest to hospitals. Based on resident feedback, we are developing additional materials to educate pediatric residents about cognitive and behavioral development in greater depth. Through our website, we will make this curriculum available to other teaching hospitals.

ABSTRACT #20

Efficacy of a Resident Initiative to Increase Resident Breastfeeding Knowledge

AUTHORS: Carolina Zenobi, Lawrence Noble

Purpose: Breast milk has been shown to provide great health benefits both to mother and infant. Health care professionals have a critical role in interventions to promote and support breastfeeding. We aimed to assess a pediatric resident intervention to increase resident knowledge of breastfeeding.

Methods: A survey was distributed among pediatric residents (PGY-1, 2 & 3). Gaps in breastfeeding knowledge were addressed in a one hour teaching session that was held soon after the questionnaire. A second survey was delivered after the teaching session to assess for improvement in knowledge. The survey was divided in 2 parts; the first part was a subjective assessment by the residents of their knowledge. The second part was an objective test of actual knowledge through specific breastfeeding questions. Data was analyzed by Chi-square and Fisher's exact tests.

Results: A total of 30 and 26 surveys were completed before and after the teaching session respectively from a total of 39 residents (77% and 67%). After the intervention, the subjective scores of the residents increased for breastfeeding knowledge (40% vs 23%, p=.05, OR 3.0, 95% CI 1.1-9.3). However, the objective test for breastfeeding knowledge did not show a statistical difference before and after the intervention (63.2% vs. 62.9%).

Conclusion: This study showed that a teaching session was not successful in improving resident's objective knowledge, despite the resident's subjective assessment that their knowledge improved. We hypothesize that a more hands on teaching experience might be required to improve breastfeeding knowledge among residents.

ABSTRACT #21

"The E's of Education in Medicine": Implementation of an Original Nine Step Residents-as-Teachers Curriculum

Authors: Deana T. Nes, Erica Vero

Purpose: A literature review of Residents-as-Teachers (RAT) curricula found that resident teaching courses improve resident self-assessed teaching behaviors and teaching confidence. The busy nature of many internal medicine programs makes it challenging to find time to teach efficiently and effectively. We created an original and comprehensive resident driven RAT curriculum to help our house-staff develop further as clinician-educators, become more confident in their teaching abilities and increase the amount of time they spend teaching on the wards.

Methods: We surveyed 78 of our internal medicine residents regarding the amount of time they spend teaching on the wards, their barriers to teaching, and their attitudes towards teaching and the establishment of a formal RAT curriculum. An extensive literature review was performed to identify articles on "teaching when time is limited", "effective feedback", "education theory in practice", and "teaching models in medicine". It also included well- established tools traditionally used in faculty development, which we tailored to better suit the unique needs and demands of busy residents in training. 14 articles were selected and utilized as a basis to create a nine step original curriculum entitled "The E's of Education in Medicine". Our house-staff will be asked to complete a repeat survey, following the implementation of our curriculum in its entirety, to evaluate its effects on their daily interactions with junior residents and medical students, their level of confidence as educators and the amount of time they spend teaching on the wards.

Results: The initial survey revealed that 98% of the residents felt teaching was an inherent and important component of their roles as residents but despite this only 5% felt they spent at least 15 minutes teaching on most days. About 40% of the residents reported lack of confidence and lack of instruction in teaching as barriers to teaching on the wards. We have already implemented some of the curriculum and thus far it has been very positively received by our house-staff.

Conclusion: Interestingly, our initial survey results demonstrated a discrepancy between residents' perception of their time spent teaching on the wards and their intent and sense of responsibility to do so. One goal of our curriculum is to help the house-staff recognize teaching opportunities in their daily activities and utilize techniques they may not be conscious of such as "role modeling" or "reasoning out loud". We believe that increasing cognizance of such behaviors in addition to introducing structured teaching models will improve the effectiveness and efficiency of resident teaching, significantly increase the amount of time spent teaching as well as increase their confidence as resident educators.

ABSTRACT #22

Doctoring in the Age of the Electronic Medical Record: A Curricular Innovation

Authors: Rachel Rosenberg

Purpose: As health information technology has developed and the electronic medical record (EMR) has become ubiquitous in both inpatient and outpatient settings, many aspects of the physician's job have changed. Some have argued that EMRs have fundamentally changed the doctor-patient relationship, as the traditionally dyadic interaction between physician and patient has become a triadic interaction with the computer as the third party. Many commentators have expressed concern over the negative consequences of this shift. But the evidence shows that the electronic medical record can have both have both positive and negative effects on the doctor-patient relationship. A review of the literature reveals that little has been done to incorporate patient-centered use of the EMR into graduate medical education curricula or assessment. Our new curriculum, called the Doctoring in the Age of the EMR Curriculum (DAE), was developed in keeping with our program's mission to support resident physicians as they develop into compassionate, patient-centered family physicians. This longitudinal curriculum utilizes novel, active teaching strategies throughout the three-year residency to help residents develop and practice the skills needed to effectively utilize the electronic medical record while employing excellent communication skills and building the patient-doctor relationship. The purpose of this curriculum is to explicitly teach residents how to capitalize on the patient-centered potential benefits of the EMR without losing the human connection with the patient.

Methods: The curriculum is currently being piloted at the Harlem Family Medicine Residency in New York. The residency class that started in July 2016 is the first to experience this three year, longitudinal curriculum. In creating this curriculum, first a review of the literature was performed in order to identify and incorporate evidence-based approaches to teaching good communication skills in the context of the EMR. Next, a needs assessment was performed, with both residents and faculty being surveyed.

Results: Learning Outcomes for the curriculum were developed based on the results of the Needs Assessment and Literature Review. Four core Learning outcomes were developed. Residents will be able to: Describe physician behaviors related to the EMR that can enhance and detract from the physician-patient relationship; Use a structured approach to using the computer during office encounters using the POISED model (Prepare, Orient, Information Gathering, Share, Educate and Debrief); Create medically appropriate, patient-centered written responses to messages sent by patients through the patient portal; Engage in reflection and self-assessment regarding how their own use of EMR has enhanced or acted as a barrier to relationship building in specific patient encounters

Conclusion: The Doctoring in the Age of the EMR curriculum is currently being piloted. Assessment of both the learners and the curriculum is an integral part of the pilot plan. The curriculum is designed to be practical and generalizable, and we hope to disseminate the curriculum and the results of our pilot. We believe that the next generation of physicians needs to be armed with the knowledge, skills and attitudes that will empower them to maintain the principles of excellent doctoring even as healthcare technologies evolve.

CURRICULUM: UME I

POSTERS 23 – 26

ABSTRACT #23

Goals of Medical Students Participating in Scholarly Concentration Programs

Authors: Karen Zier, Kurt Alberson, Vineet Aurora, Rachel Wolfson

Purpose: Scholarly concentration (SC) programs are increasingly common in US medical school curricula in order to foster mentored student research. Program endpoints such as publication rates and research self-efficacy have been reported, but SC-related goals of students have not been described. The purpose of this study was to describe the impact of career plans and gender on the importance of SC-related goals.

Methods: We surveyed first year students at two US medical schools, Icahn School of Medicine at Mount Sinai and University of Chicago Pritzker School of Medicine. We queried intention for career-long research and specialty interests. Using a 5-point scale, students assigned importance to 13 SC-related goals (8 skill-related goals, 4 accomplishment-related goals, and mentorship). We created composite scores for the skills-related and accomplishment-related goals for analysis. We used regression analyses, controlling for school, to determine whether intention for career-long research, interest in highly competitive residency, or gender were associated with increased importance placed on different types of goals.

Results: Surveys were sent to 288 first-year medical students and 186 responses (64.6% response rate) were included in our analysis. Students interested in career-long research placed more importance on both skill-related goals (beta coefficient 1.87, 95% CI 1.03-2.71, $p<0.001$) and accomplishment-related goals (OR 1.71, 95% CI 1.09- 2.69, $p = 0.02$) than their peers. Students interested in highly competitive specialties placed more importance on accomplishment-related goals (OR 2.18, 95% CI 1.15-4.11, $p = 0.02$) than their peers. Women placed more importance on mentorship than men (OR 2.47, 95% CI 1.23-4.97, $p = 0.01$) and were less likely to be interested in highly competitive residencies than men (39.4% vs 54.9%, $p = 0.04$).

Conclusion: Our results demonstrate that gender and career plans are associated with differential importance of medical student SC-related goals. The gender-related findings were interesting, as we did not expect that men would value mentorship opportunities less relative to women. Furthermore, we did not expect a gender-based difference in interest in highly competitive residencies, given the gender near-equality seen in medical school admissions. However, delineation of these goals is important to help ensure that students are able to gain the skills desired for their future careers by individually tailoring their educational experiences and matching them with mentors who have the experience and knowledge best suited to facilitate their aspirations. Acknowledging the heterogeneous priorities of incoming students and prioritizing their attainment of these goals may enhance student participation in research during medical school and increase their level of satisfaction, thereby encouraging engagement in scholarly work as part of their future careers.

ABSTRACT #24

A National Assessment in Collaboration with AAMC: Climate Change Curriculum in Med Ed

Authors: Kavya Timmireddy, Perry Sheffield

Purpose: Increasingly, medical schools are being challenged to incorporate more multidisciplinary topics in response to the shifting health demands of the 21st Century. Among those challenges is climate change. While over 100 health professional schools across 15 countries have committed to prepare their next generation of students to deal with the health impacts of climate change, little is known in regards to the actual status of climate and health topics in undergraduate medical education in the U.S. The American Association of Medical Colleges (AAMC), as the sole entity with a national database of medical school curriculum (AAMC's Curriculum Inventory - www.aamc.org/cir), is uniquely positioned to support the investigation of climate and health topics in undergraduate medical education as 95% of U.S. medical schools report their curriculum to their database. Using the AAMC's new curriculum inventory tool, this project investigates the current status of climate and health topics in medical school curriculum as well as new potential pathways for integration.

Methods: Search terms were drawn from a pre-existing list of MeSH Browser generated climate change topics and the U.S. National Climate Assessment. Terms were divided into 4 tiers, with multiple sub-tiers. Tier 1 contained umbrella climate change terms. Tier 2 contained meteorological terms related to climate change. Tier 3 terms were the health impacts of climate change. Tier 4 terms were actions/solutions for and the social determinants of health impacted by climate change. All search terms were reviewed by a panel of experts. AAMC ran the search terms through the Curriculum Inventory tool to generate 10 reports. Each report details the percent of schools, the median/max number of courses or classes, the academic level, and the instructional method/resource/assessment method/physician competencies associated with each tier. AAMC also provided a de- identified list of participating schools and which tiers their curriculum contained.

Results: The 133 allopathic U.S. medical schools that provide curriculum data to AAMC were included. The Tier 1 report generated 9 schools. Tier 2a (climate change specific meteorological terms) and 2b (general meteorological terms) generated 8 and 12 schools respectively. Tier 3a (food/water insecurity), 3b (respiratory/cardiovascular terms), 3c (disease vectors), 3d (mental health), and 3e (weather stressors) reported 104 schools, 120 schools, 91 schools, 117 schools, and 120 schools, respectively. Tier 4a (climate change solutions and actions) and 4b (social determinants of health) generated 0 and 107 schools respectively. Only 1 school reported not having any search terms from Tier 3.

Conclusion: Results from the Tier 1 and Tier 2 search terms indicate that few medical schools are talking directly about climate and health topics. However, the larger number of schools reporting Tier 3 and Tier 4b terms shows that medical school curriculum in the U.S. has a basis for integration of climate and health topics. While not currently discussed in the context of climate change, these topics may serve as potential portals for integration. This work complements an AAMC-led initiative to make their database more comprehensive and responsive to curriculum research by its users.

ABSTRACT #25

Bedside Medicine: Extracurricular Cardiovascular Ultrasound Tutorial Enhances Cardiology Learning and Clinical Skills in Second-Year Medical Students

Authors: Jacob Lurie, Helen He, Naman Barman, Anirudh Kumar, Stephen A. McCullough, Martin Goldman

Purpose: Ultrasound is an important imaging tool for bedside patient care because it is non-invasive, safe, and cost- effective. It is widely used across multiple medical specialties as a diagnostic tool and as an extension of the physical exam. Currently, ultrasound training in medical schools is limited to isolated programs. Because most US medical schools split their curricula into preclinical and clinical components, students' understanding of theoretical concepts is largely separate from clinical practice. Thus, in partnership with the Division of Cardiology at the Icahn School of Medicine at Mount Sinai, we recreated an IRB-exempt pilot study featuring an echocardiography curriculum for second-year medical students who were concurrently studying relevant cardiac pathophysiology modules.

Methods: We modeled our instructional approach after the "A-F" paradigm, emphasizing ultrasound technique, major structures and expected appearance, as well as major pathology and how & where to look for it. The curriculum was comprised of four modules that included basic ultrasound technique, identifying pathophysiological processes, dedicated time at the Mount Sinai Echocardiography Simulation Lab, and integrated didactics. We ran two iterations of this curriculum with second-year medical students in 2015 and 2016, respectively. For each run, we enrolled twenty students via email outreach. We generated evaluation metrics through the administration of a focused echocardiography test completed before and after training. Additionally, feedback surveys were administered. Comparison metrics were evaluated using paired t-tests.

Results: Out of the 40 students enrolled into the program, 35 students completed at least three of the four sessions in full including the evaluation metrics outlined (19/20 in 2015, 16/20 in 2016). Of note, 17 out of 40 students had already used an echocardiography machine on one or more occasion (out of those, only 2 have used a machine more than 3 times). Nevertheless, the administration of pre- and post-curriculum echocardiography competency tests revealed marked improvement in echocardiography skills from baseline. A paired t-test showed a cumulative average of 66.6 (95% CI:[55.5,77.7]) percentage point improvement in scores (2015: 45.3 [29.3, 61.2], 2016: 88.0 [79.7, 96.2]). All comparisons were significantly different ($p<0.0001$). The medical education survey also uncovered striking insights regarding the impact the course had on the students. Cumulatively, 89.4% of the students who attended at least two sessions agreed or strongly agreed that the course helped them get more out of their concurrent cardiovascular pathophysiology module. 92.1% of the students agreed or strongly agreed that ultrasound should become part of the standard medical curriculum and would make them a better or more competent physician.

Conclusion: Across both iterations of the program, second-year medical students reported gaining a skill that they felt was beneficial to their understanding of medicine. Students felt confident in their ability to utilize echocardiography, and all students who participated in at least two sessions perceived this course to be enriching to the current medical school curriculum. Additionally, medical students overwhelmingly felt that they would like echocardiography incorporated into their regular medical school curriculum.

ABSTRACT #26

A Longitudinal Undergraduate Medical Education Curriculum in Mitigating Bias as a Clinical Skill

Authors: Ann-Gel S. Palermo, Carolina Miranda, Murad Khan, Giselle Lynch, Ebi Okah, Joanne Hojsak, Joseph Truglio, Reena Karani

Purpose: Structural bias toward an individual or group occurs as a consequence of the task and/or reward structure within an institution or system. Within the health system, structural biases are associated with healthcare inequities. At the individual level, physician bias leads to cognitive errors further perpetuating these health inequities. Few curricula exist to teach medical students how to mitigate bias at the structural and individual levels as a clinical skill. Using the Cycle of Experiential Learning (Kolb Cycle) we are implementing a four-year curriculum on mitigating bias as a clinical skill.

Methods: Beginning with the medical school class of 2019, Year 1 activities start with a 30-minute overview on the role of racial bias in healthcare followed by a one-hour interactive milestone which explores how student lived experiences (Kolb Stage 1 Concrete Experience) shape their biases. The Year 1-2 Art and Science of Medicine (ASM) clinical skills course was restructured to include a teaching cornerstone on mitigating bias while learning about the social determinants of health (Kolb Stage 2 Reflective Observation). Subsequent small group discussions foster a deeper understanding on how individual and structural bias influence patient engagement and perpetuate health inequities (Kolb Stage 3 Abstract Conceptualization). Students then actively work to establish trust and patient-centeredness through clinical encounters and clerkships in Y2-3 (Kolb Stage 4 Active Experimentation). All activities involved senior students as co-facilitators and contributors to the curriculum. Faculty development sessions aimed to equip faculty with the knowledge, language, and facilitation techniques to teach and mitigate unconscious bias, particularly during a clinical encounter. Additional learning activities for Y3 and Y4 are under development and are focused on communication strategies and mitigating bias as a leadership skill.

Results: Initial feedback was overall positive. E*Value and informal student and faculty feedback are collected. Data from our initial bias session occurring at the end of year two during an eight-module clinic skills session show that fifty percent of respondents reported that the bias sessions were the “most useful” of the clinical skills sessions. Year 3 pilot session had a quantitative rating of 3.35/5, with 117 out of 140 participants responding. Notable comments for both sessions included: “Very well taught and thought provoking” and “while not perfect, it was one of the few examples we've had of faculty modeling critical self-reflection with respect to medicine and its history of oppression.” Constructive feedback on the need for additional rigorous faculty development, more structured small group discussions, and introductions to bias earlier in the medical school were noted areas for improvement.

Conclusion: Our response to addressing the perpetuation of structural and individual biases in the health care system is four-year longitudinal curriculum aimed at providing medical students with experiential learning opportunities to develop strategies to mitigate their own bias. Future directions include assessment of outcomes via E*Value data and analysis of standardized patient encounters.

CURRICULUM: UME II

POSTERS 27 – 29

ABSTRACT #27

Medical Scientist Grand Rounds: A Program-Wide Monthly Event to Engage Discussions of Science and Medicine

Authors: Talia H. Swartz, Benjamin Chen, Margaret Baron

Purpose: The main objective of this program is to engage trainees of the Medical Scientist Training Program (MD/PhD) in a monthly event to encourage thinking about case-based clinical scenarios and scientific programs investigating those clinical challenges.

Methods: The audience comprises students (~70) in the MD/PhD program in pre-clinical training and in the graduate education phase. The curriculum is planned around the individual research projects of the students completing their PhD dissertation research. The session format is as follows: a student in their clinical training (MD3 or MD4) presents a case related to the PhD research project, with the guidance of a clinician mentor who is an expert in the specific clinical subject area. This presentation concludes with an open-ended question or identification of a gap in knowledge. Next, a student in the PhD phase of the program (MP3 or MP4) speaks about their research project that addresses this gap. Following the student presentations, the clinician mentor and the scientific PhD mentor join the students for a panel discussion in which the audience poses questions related to the science, clinical presentation, or outstanding challenges in the field. The goal is to train students to identify scientific approaches that can address important clinical problems. Surveys are distributed every 6 months to assess learning objectives.

Results: The course is mandatory and has been well received, with nearly 100% attendance and only rare excused absences. Survey results indicate that students have identified new potential research fields, areas of collaboration, interesting mentors and career advisors, and have the opportunity to think about clinical and scientific questions outside of their direct area of expertise. Finally, students appreciate the opportunity to meet regularly with classmates, faculty, and MSTP leadership and to have connections with students in classes above and below them.

Conclusion: Medical Scientist Grand Rounds has become a cornerstone of the MD/PhD Program, encouraging collaboration and strengthening the community by providing a forum to discuss the intersection between clinical medicine and scientific research. It allows senior students to showcase their accomplishments both in clinical skills and oral presentations and in presenting and discussing their scientific progress. The course has been well-received by students and participating faculty and will continue to serve as a venue for community-building. Ongoing survey results will inform the need for continued improvement.

ABSTRACT #28

Outcomes of Teaching Students to Edit Medical Content on Wikipedia

Authors: Felix Richter, Preston Atteberry, Mark J. Bailey, Marcus A. Badgeley, Lane Rasberry, Trevor Pour

Purpose: Patients and medical professionals search the Internet for medical information, and Wikipedia is a commonly consulted source. The 25,000 medical articles on Wikipedia receive 200 million views per month. The content, however, can be edited by anyone, and most editors are not medical professionals. This results in content with variable quality. In addition, most medical professionals have no formal training on Wikipedia editing. Our goal was to empower medical students and physicians to improve and peer review Wikipedia content through interactive group editing sessions (edit-a-thons) and a medical elective (Nexus) course aimed at 1st and 2nd year medical students.

Methods: In order to teach Wikipedia editing to the ISMMS community, we formed a student group and led a Nexus course. The student group organized monthly edit-a-thons, where the goal of each session was to interactively teach editing by asking each attendee to contribute one peer-reviewed reference and five edits to Wikipedia over a one to two-hour long session. The Nexus course was formed in collaboration with the Emergency Medicine department and focused on longitudinal editing of a single article. After these teaching interventions, we were able to quantify the contribution of our new editing community and determine predictors of editor retention. We used WMFlabs to profile edits and bytes changed since inception of the student group, and R to analyze the results.

Results: Over 3 years, 28 students and physicians contributed 1211 edits, created 59 new pages and redirects, added 158,494 bytes, and removed 33,353 bytes from Wikipedia. Over half of the participants (18/28) continued to contribute to Wikipedia after their first month editing, which is higher than the average 5% retention rates for English Wikipedia ($p=3.1x10^{-17}$, binomial test). The biggest predictor of editor retention was whether or not a student enrolled in the Nexus course (OR=27.5, p=0.0014, Fisher's Exact Test). Number of edits added during the first edit-a-thon was not associated with retention (p=0.34, Welch's two-sample test), and neither was completing the suggested 5 edits (OR=1.1, p=0.99, Fisher's Exact Test).

Conclusion: We taught Wikipedia editing to medical professionals through both one-off and long-term interactive sessions. Although selection bias probably played a role in which users were more likely to continue editing after the first month, the overall contribution to Wikipedia encourages us that both the edit-a-thons and Nexus course are effective. Additionally, our findings were able to guide the design of future courses and events. Because the number of edits made at the first session was not associated with retention, we will opt for any number of edits instead of the five edit suggestion. Most importantly, we developed Wikipedia-based templates for the edit-a-thons and Nexus course that are freely available and will provide a framework at other institutions.

ABSTRACT #29

Evaluation of Medical Knowledge Retention after Completing the 2nd Year Hematology Pathophysiology Course

Authors: Arielle L. Langer, Adam Binder, Eileen Scigliano

Purpose: Various teaching modalities have been used within course curricula in order to teach students the relevant material. Over the last decade, there has been a movement away from the 'traditional lecture' towards more interactive modalities such as a 'flipped classroom.' The second year hematology pathophysiology course teaches through multiple modalities, understanding the need for various teaching modalities in order to benefit all students. To our knowledge, no published studies exist evaluating whether this multi-modality teaching style improves medical knowledge retention. As a result, we will assess hematology medical knowledge retention over a longitudinal period of 3 years after completing the 2nd year hematology pathophysiology course. In addition, as a sub analysis, we will assess if certain teaching modalities improve knowledge retention.

Methods: All second year medical students at the Icahn School of Medicine at Mount Sinai will be offered participation in a longitudinal study to evaluate medical knowledge retention over a 3-year period. All participating students will complete 4 multiple choice quizzes (MCQ): prior to starting the hematology pathophysiology course, at the end of their third year of medical school, at the end of their fourth year of medical school, and at the end of their intern year. After completion of the 4-week course, there will also be a short resource use survey to capture which modalities the student utilized.

Results: We have developed the survey instruments for both the MCQs and the resource use survey on REDCap. We have encountered several obstacles to implantation. IRB and Medical Student Council approval for research on a protected group provided a timing challenge, as the course is at a fixed time in the year and slight delays from these necessary steps resulted in a year delay in enrollment. Another challenge was identifying an appropriate survey platform, which was addressed by obtaining access to REDCap.

Conclusion: There are many barriers to curriculum research, but in order to engage in rigorous program evaluation, these need to be overcome. Streamlined approval for education studies that reflexively includes forwarding of IRB proposals to the Medical Student Council and expedited review for studies tied to the curriculum would facilitate future research.

GLOBAL HEALTH

POSTERS 30 – 32

ABSTRACT #30

Implementation and Evaluation of a Geriatrics Curriculum for Peruvian Medical Students

Authors: Veronica Pinto Miranda, Noelle M. Javier, William Hung, Christine Chang

Purpose: Despite the growing older adult population in Peru, few Peruvian physicians receive training in geriatrics. We aimed to pilot a condensed geriatrics curriculum for Peruvian sixth-year medical students and assess its short-term impact on student perceived self-efficacy and knowledge in caring for older adults.

Methods: A needs assessment survey among the faculty at the Universidad Nacional Mayor de San Marcos identified 4 geriatric content domains of competencies that comprised this curriculum (out of 8 proposed by the Association of American Medical Colleges for medical students): assessment of self-care capacity, medication management, atypical presentation of disease, and health care planning and promotion for elderly patients. San Marcos sixth year medical students had 30-minutes didactic presentations on these topics by a Spanish-native speaking geriatric fellow, followed by 30-minutes of either role playing or case discussion as teaching modalities. They completed surveys that assessed their perceived self-efficacy (assessing functional abilities of older adults, suggesting therapeutic interventions for the disabled older adult, identifying delirium as an atypical symptom of disease, interpreting vital signs in older adults that are acutely sick, describing why prescribing for older adults is different than for the younger adults, identifying unnecessary prescriptions in an elderly patient, describing why prognostication is important, and identifying which elderly patients would benefit from prevention strategies) and knowledge on these 4 domains before and after this educational intervention.

Results: Thirty-six students took the pre- and 20 the post-curriculum survey. After this curriculum, students felt more comfortable assessing functional abilities of older adults, suggesting therapeutic interventions for the disabled older adult, identifying delirium as an atypical symptom of disease, identifying unnecessary prescriptions in an elderly patient and identifying which elderly patients would benefit from prevention strategies ($p < 0.05$ for each outcome). Whereas 50% could list at least 3 activities of daily living before the intervention, 100% was able to do it afterwards. The percentage of students able to list at least 4 medications in the Beers criteria increased from 3% to 75% after the curriculum. Ninety seven percent did not mention any tools for prognostication before the intervention, whereas 70% mentioned 4 at the end of it. Students correctly answered 16% of knowledge questions before and 69% after the curriculum ($p<0.001$). They also were more likely to use Katz Index and Lawton Scale (pre 0%, post 95%) and Confusion Assessment Method (pre 0%, post 75%) in future practice ($p<.001$).

Conclusion: Our geriatrics curriculum increased the sixth year Peruvian medical students' knowledge on 4 geriatric content domains (assessment of self-care capacity, medication management, atypical presentation of disease, and health care planning and promotion for elderly patients) and their perceived self-efficacy in caring for geriatric patients. This highlights the potential benefit of incorporating more geriatrics in the curriculum of Peruvian medical schools.

ABSTRACT #31

The Impact of Quality Assurance Oversight on the Retention of Bedside Ultrasound Skills over a 6-Month Period in Beira, Mozambique

Authors: Turandot Saul, James Mangan, Rachel Berkowitz, Sebastian Siadecki, Gabriel Rose, Kyle Cramer

Purpose: Bedside ultrasound is a portable imaging modality that has high diagnostic capability and immense utility in procedural guidance. It is performed and interpreted by a single provider allowing for real time patient care management decisions. In addition, portable ultrasound equipment can be battery powered and not directly dependent on available electrical power. Mozambique is a low-income country (2013 gross domestic product (GDP) per capita ranking at 213 worldwide) with mostly resource-limited medical settings that could potentially benefit from bedside ultrasound training. Many international ultrasound courses involve a short period of ultrasound training with little to no continuing education, quality assurance, or ongoing objective assessment of skills. This study aimed to measure the impact of quality assurance oversight on the retention and improvement in bedside diagnostic ultrasound skills over a 6-month period in this resource-limited setting.

Methods: This study was performed at the Catholic University of Mozambique (UCM). Twenty 5th year medical students participated in a three-day ultrasound course in the spring of 2016. A week after course completion, each student completed an SDOT for three applications: cardiac, lung and FAST. For 6 months, students sent sonographic images with a brief history to the Mount Sinai St. Luke's Mount Sinai West emergency ultrasound division members via the WhatsApp group application on their smart phones. The ultrasound division reviewed each image submitted and gave feedback and teaching points. At the end of the 6 month period the SDOT evaluations were repeated.

Results: 21 students were enrolled in the study. Mean OSCE scores were 47% (cardiac), 46% (lung) and 59% (FAST) right after course completion. 4/21 (19%) students did not complete their 6 month OSCE, leaving 17/21 for interpretation. Mean OSCE scores at 6 months were 55% (cardiac), 52% (lung) and 67% (FAST).

Conclusion: We expected that there would be some decay in knowledge 6 months following the intensive course, and our remote quality assurance was an attempt to keep students engaged, encourage them to perform studies, and prolong their benefit from oversight. The students performed better on the OSCE exams after a 6 month period of quality assurance and feedback in all of the applications tested.

ABSTRACT #32

Structuring Medical Student Global Health Research Projects along a Competency Framework: A Proposed Model

Authors: Lucy Goodson, Craig Katz, Robert Yanagisawa

Purpose: Global health research opportunities give medical students exposure to the challenges, responsibilities, and rewards of international research partnership. However, medical schools lack a standard rubric for assessing the strengths and weaknesses of these projects' design, making students vulnerable to developing a protocol that is ineffective in the field. We propose a competency-based guide for program design, implementation, and review, that students may anticipate their blind spots and improve future research efforts.

Methods: We envision a curriculum for graduate global health researchers structured along 39 competencies compiled by the Consortium of Universities for Global Health. These competencies fall into 11 domains, including "Global Burden of Disease," "Program Management," and "Professional Practice." Student researchers would consult a rubric based on these competencies to determine if their protocol demonstrates sufficient cultural awareness, community input, and context-specific strategies. These competencies are intentionally open-ended and flexible to encourage the research team to think critically and creatively about their approach. Upon return, the team would review their competencies and highlight changes, note unexpected obstacles, and suggest improvements.

Results: We assessed a research project designed and implemented by the author in Fukushima, Japan along this competency rubric. Weaknesses emerged that mirrored challenges faced in the field, particularly in Capacity Strengthening and Strategic Analysis. The research team discussed strategies they could have implemented earlier in design and execution to avoid these obstacles and improve results. The next generation of researchers will use this feedback to amend ongoing projects. Participant enrollment and feedback in future projects compared with initial outcomes may provide an empirical assessment of this competency-based rubric.

Conclusion: Reframing global health research through competency development gives students a structured yet flexible approach to protocol design. Incorporating competencies into pre-departure education and on-site orientation pioneers a thoughtful, intentional, and collaborative approach to graduate global health research.

PROFESSIONAL DEVELOPMENT I

POSTERS 33 – 37

ABSTRACT #33

Morning Report: Meeting Residents' Needs

Authors: Mohamed Barakat, Ayelet Spitzer, Debra Brennessel

Purpose: Conventional morning report was first conceived to discuss overnight issues and admissions with an attending physician or a chief resident using the Socratic Method. However, residents at different levels of training have different learning needs. The purpose of this survey was to measure internal medicine residents' satisfaction with morning report at an academic community hospital.

Methods: We used a 7-item online questionnaire. The survey was anonymous, all residents in the program were eligible and participation was voluntary.

Results: Fifty-two (72% response rate) of 72 residents responded. Resident satisfaction varied. Three (5.8%) were very satisfied, 20 (38.5%) were satisfied, 21 (40.4%) were neutral, 7 (13.5%) were unsatisfied and 1 (1.9%) was very unsatisfied. While 16 (61%) PGY-1 respondents reported being satisfied or very satisfied, only 7 (46%) PGY-2 respondents and 2 (15%) PGY-3 respondents reported satisfaction ($p<0.01$). Attendance varied across academic years as well. Though forty-eight (92%) residents attended more than half of all morning reports, twenty-three (96%) PGY-1 and 15 (100%) PGY-2 respondents attended more than half the time or every day, while only 10 (77%) PGY-3 respondents had similar attendance rates ($p<.03$). Though not statistically significant, PGY-1 and PGY-2 respondents felt that they learned just the right amount or a lot (50% and 73% respectively), while only 4 (31%) of PGY-3 respondents agreed. Thirty-five (67.3%) residents suggested that further discussion of evidence-based management would enhance their education, 19 (36.5%) residents were in favor of adding board type questions to morning report, 19 (36.5%) residents suggested subspecialty attending-run morning report, 17 (32.7%) residents wanted case presentations, and 12 (23.1%) residents wanted to incorporate Medical Jeopardy.

Conclusion: Conventional morning report may not be suitable for all residents in a training program as residents' training levels differ. As evident by our data, the educational value of morning report decreases as resident's progress through training and subsequently satisfaction and attendance decrease. We suggest that morning report be a dynamic venue with more than one platform that all residents at different levels of training.

ABSTRACT #34

Differences between Plastic Surgery Resident Self-Evaluations and Attending Assessments on ACGME Milestones

Authors: Amy Yao, Lester Silver, Peter J. Taub

Purpose: Resident assessment underwent a paradigm shift with the introduction of the Accreditation Council for Graduate Medical Education (ACGME)'s Next Accreditation System (NAS) in 2012. The new outcomes-based evaluation system is structured around a set of specialty-specific core competencies that are subdivided into individual milestones. Regular external feedback is vital for resident development, though a resident's perception of their own progress may be of equal importance. Resident self-assessments can be useful to identify expectations and discrepancies in educational objectives, and may help maximize the success of their learning process. The objective of our study was to determine the correlation between milestone evaluation by plastic surgery faculty with resident self-evaluations.

Methods: This is a cross-sectional study of the first two years of NAS implementation of a single integrated six-year plastic surgery residency program. The program's Clinical Competency Committee (CCC), comprised of eight faculty members, evaluated each resident in each of the milestones. Each resident then self-evaluated him/herself in the same milestones. We used sample t-tests to analyze the differences between the two sets of evaluations across the six PGYs, by individual milestone, and by core competency.

Results: Residents in PGY-1 and PGY-2 evaluated themselves significantly higher than their attendings in all six core competencies. By PGY-6, there was no significant difference between resident self-evaluations and attending evaluations. Average differences in scores generally decreased as PGY increased. Professional skills such as systems-based practice demonstrated the highest average difference in scores, especially in newer residents.

Conclusion: The gaps between attending evaluations and resident self-evaluations, particularly in the competencies describing professional skillsets, highlights the difference in faculty expectations and residents' perception of their abilities. This study may be useful to further shape and validate the restructuring of the resident accreditation process.

ABSTRACT #35

Residents' Perceptions of Inappropriate Consults: Expectations of Expertise among Medicine and Neurology Residents

Authors: Charles Sanky, Eric Bortnick, Stephen Krieger

Purpose: As medicine continues to grow increasingly specialized, a physician's knowledge base may not overlap with those in other fields. Residency programs represent the initial training and specialization where physicians delve deeper into their chosen area, but they can begin to lose touch with medical knowledge central to other fields. Nevertheless, specialists often consider their knowledge as "common sense," as their patient care necessarily comes from a specialized perspective. This leads to two fallacies: 1) The sense that other physicians ought to have similar knowledge, else they are uninformed; 2) When encountering an unfamiliar situation, physicians may erroneously characterize it as obscure and out of their scope. These fallacies commonly invoke complaints about "inappropriate consults," thus impeding physician communication and the efficacy of interdisciplinary care teams. This is especially deleterious in residency training, where future physicians are unconsciously indoctrinated with these fallacies. We sought to assess biases in residents' perceptions of medical knowledge base and inappropriate consults.

Methods: 13 Neurology residents (NRs) and 10 Internal Medicine residents (IMRs) at the Icahn School of Medicine at Mount Sinai completed a survey containing 5 neurology and 5 medicine board-style questions reflecting common consultation scenarios. Residents answered each question and rated to what extent each should be common knowledge to both specialties, was actually common knowledge to both specialties, and if the scenario warranted a consult.

Results: Paired sample t-tests revealed that IMRs correctly answered significantly more medicine than neurology questions (3.80 vs. 1.90, $p<0.001$), while NRs correctly answered 2.92 medicine and 2.85 neurology questions ($p=0.856$). Additionally, NRs answered significantly more neurology questions correctly than IMRs ($p=0.013$). IMRs thought NRs should know more neurology answers than NRs actually did ($p=0.003$), and conversely, NRs thought IMRs should know more neurology answers than IMRs actually did ($p=0.049$). IMRs were more likely than NRs to state IMRs should know neurology answers ($p<0.001$). Members of both groups thought they should know more neurology answers than they actually did ($p=0.001$ for both). When asked if medicine questions deserved a consult, IMRs were more likely to agree than NRs ($p=0.014$).

Conclusion: The methodology used in this pilot project suggests trends of inherent biases pertaining to interdisciplinary consultation stemming from the dual fallacies. These results indicate that members of both groups expected the other to have specialty clinical knowledge, and even IMRs agreed they should know more in neurology but did not. Nevertheless, there were differences between groups in their perception of the appropriateness of certain consultation scenarios, possibly reflecting these underlying beliefs. Further investigation will examine the existence of dual fallacies among other specialties, the role of institutional policies regarding consults, and the effects of interdisciplinary team education and rotations, which are becoming increasingly utilized in residency programs.

ABSTRACT #36

Mindfulness in Emergency Medicine

Authors: Arlene Chung, Tina Mathew

Purpose: Despite evidence demonstrating the benefits of wellness programs, many medical schools still lag behind in implementation of curricula addressing stress, burnout, and work-life balance. Students planning a career in EM may benefit from mindfulness training, as EM has one of the highest rates of burnout of any US medical specialty. To the best of our knowledge, this is the first mindfulness-based educational intervention designed for EM clerkships to help students manage stress and reduce risk of burnout.

Methods: Our curriculum included (1) four, once weekly, 60-minute classroom sessions, (2) pre-requisite reading assignments, (3) individual daily meditation practice and journaling, and (4) the development of a personalized wellness plan with the help of a mentor. The design is based on self-directed learning theory and focuses on building relatedness, competence, and autonomy to help cultivate mindfulness.

Results: 30 students participated in the curriculum over three months. Each student completed surveys prior to, immediately after, and six months after the curriculum. Unfortunately a few students were lost to follow-up. Responses on the surveys included: 1=not at all/never, 2=a little/occasionally, 3=a lot/once a week, 4=very much/every day. Prior to the curriculum, most students did not meditate at all (57%; n=17/30) or feel comfortable in their own ability to meditate (33%; n=10/30). Immediately afterward, all of the students reported meditating at least a little (100%; n=22/22) and most felt at least a little comfortable in their own ability to meditate (91%; n=20/22). Six months later, much of the self-reported attitudes and behaviors of the students remained stable, most notably the students' confidence in their own ability to meditate (92%, n=22/24, still felt at least a little comfortable). Perhaps most encouragingly, 58% (n=14/24) of the students reported using their individual wellness plan at least occasionally and 8% (n=2/24) reported using it every day.

Conclusion: Although the sample size was small, our curriculum had a sustained behavioral impact on our students. In the future, this intervention could easily be adapted for any four-week rotation during medical school to reduce burnout and increase physician wellness.

ABSTRACT #37

How well do Neurology Residents Differentiate between Neurological Illness and Medical Illness? An Analysis of the Close the Loop Resident Clinical Acumen Assessment Project

Authors: Lucia Qian, Rachel Brandstadter, Christine Stahl, Stephen Krieger

Purpose: To characterize the diagnostic errors made by neurology residents when presented with neurological versus medical disease.

Methods: Between July 2010 and June 2013, all patients assessed and presented by on-call junior residents during daily morning report were captured in a case log. We recorded residents' initial diagnostic impressions and "closed the loop" by later revisiting each case after reviewing the final diagnosis. Cases were categorized as having a final diagnosis of a primary neurological or non-neurological (medical, psychiatric, ophthalmologic, other) condition. If the case was a neurological disorder that was initially thought to be medical or a medical disorder that was initially thought to be neurological, we analyzed the specific neurological and medical etiologies of these diagnostic errors.

Results: 834 cases were presented with a total of 198 diagnostic errors. 77 (38.8%) were erroneously deemed neurological when the final diagnosis proved to be non-neurological. Of this subset, 41 were medical, 15 were psychiatric, 1 was ophthalmological, and 20 were categorized as "other." The 41 cases of medical illness were mistakenly thought to be seizure (13), ischemic stroke (12), demyelinating disease (5), headache (2), neuropathy (2), movement disorder (1), CNS infection (1), and dementia (1). These cases eventually were revealed to be syncope (8), systemic infectious/inflammatory disease (8), drug/alcohol related (7), metabolic derangement (5), heart disease (3), electrolyte imbalance (2), orthopedic (2), endocrine (1), and hematological (1). Four cases were excluded due to missing data points. Conversely, 25 cases (12.6%) that proved to be neurological were initially incorrectly diagnosed as medical (20), psychiatric (4), and ophthalmological (1) conditions. The 20 cases of neurological illness were mistakenly thought to be systemic infectious/inflammatory disease (8), metabolic derangement (3), orthopedic (2), liver disease (2), electrolyte imbalance (1), and heart disease (1). These cases were later revealed to be seizure (4), ischemic stroke (4), hemorrhagic stroke (3), spinal cord disease (2), demyelinating disease (1), CNS neoplasm (1), CNS infection (1), and serotonin syndrome (1). Three cases were excluded due to missing data points. The remaining 48% of total errors were correctly judged to be neurological presentations, but were etiologically inaccurate.

Conclusion: This educational initiative further examines diagnostic errors made by neurology residents. When inaccurate, residents tended to over-interpret cases as neurological. Differentiating neurological disease from medical disease presented a particularly difficult diagnostic challenge for residents, especially with regards to distinguishing seizure and stroke from medical mimics.

PROFESSIONAL DEVELOPMENT II

POSTERS 38 – 42

ABSTRACT #38

Sinai MedMaker Challenge: A Model of Experiential Team Science Education

Authors: Peter Backeris, Janice Gabrilove, Caroline Eden, Crispin N. Goytia, Kevin Costa, Sonya Makhni, Ashish Atreja

Purpose: Innovation in healthcare is increasingly dependent on technology and teamwork, requiring effective collaboration among diverse disciplines. However, large knowledge barriers exist between these diverse disciplines which hinders effective communication and the innovation processes. We organized an intensive team-based competition event, Sinai MedMaker Challenge, which engaged individuals with a wide range of backgrounds in medicine, biomedical research, computers science, and engineering to collaborate in solving medical problems with technology-based solutions. The learning objectives were to: Enable participants to identify healthcare problems which lend themselves to technology-based solutions; Delineate key behaviors critical to multidisciplinary team success; Identify optimal strategies for communicating in teams; Engage and inspire participants to apply knowledge of technology to meaningfully impact clinical care and well-being.

Methods: The Sinai MedMaker Challenge was a 48-hour team-based competition, modeled after previously held health "hackathons." Adapting from guidelines provided by MIT Hacking Medicine, the event gathered participants from diverse backgrounds (clinicians, medical students, graduate students in biomedical science and humanities, software developers, engineers, & others), for the purpose of utilizing technology to address pressing problems in the diagnosis, management &/or treatment of pain &/or fatigue. The event flow can be outlined as follows: Phase 1: Pre-event brainstorming via Slack and Sparkboard online platforms; - Phase 2: Problem review with clinical experts; - Phase 3: Solution pitches, formation of teams, development of prototype solutions; Phase 4: Presentations and prizes awarded.
The event was sponsored by ISMMS Institutes and Technology Companies. Mentors roamed throughout the event to support the teams in the technical, clinical, and business development aspects of their solutions.

Results: 78 participants forming 14 teams, worked on the development of software and hardware prototypes, (apps/websites, devices, wearables) to address a variety of pain & fatigue problems, culminating in final pitch presentations to a panel of judges comprised of academic experts; innovators and entrepreneurs in the technology start up space. Award recipients were: 1) PT partners, a wearable device for monitoring physical therapy post knee replacement; 2) SickleMeNot, an interactive, multimodal website/app for children designed to assess, monitor and manage pain; & 3) Biolumen, a functional biofeedback system, to treat chronic back pain. Evaluations revealed a high-degree of satisfaction with the event. Several teams continue to develop their prototypes.

Conclusion: The Sinai MedMaker Challenge: 1) was a compelling and productive forum to bring together students, trainees, faculty and other stakeholders to explore tech-based solutions for management, monitoring, and treatment of pain and fatigue; & 2) can be repeated annually, fostering a "Community of Practice," & expanded to offer pre & post event opportunities to encourage iterative learning and ongoing creative output.

ABSTRACT #39

The Role of Self-Reflection in Attitudes toward Professionalism among Medical Students

Authors: Jonathan E. Thaler, Craig Katz, Robert Fallar

Purpose: Research has demonstrated several key elements of an effective medical school professionalism curriculum, including role-modeling, involvement in teaching, case-based learning, and early patient contact. Implicit in the success each of these modalities is the idea that students will reflect on their experiences, but the extent to which self- reflection plays directly into medical students' professional development remains unclear. We aimed to examine the relationship between medical students' self-assessments of self-reflection and their attitudes toward professionalism.

Methods: We emailed all Icahn School of Medicine MD students asking that they complete a voluntary, anonymous online survey including demographic information as well as previously validated professionalism and self-reflection scales. The two scales both consisted entirely of Likert-scale questions. We hypothesized a significant positive correlation between self-reflection and professionalism, as measured by total scores and sub-scores on each respective scale.

Results: The survey response rate was 31% (175 complete responses out of 556 students emailed). The demographic distribution of respondents was largely representative of the larger MD student population at Icahn School of Medicine, although females were slightly over-represented in the survey (64% of subjects vs 48% of MD students). We found a weak positive correlation between professionalism and self-reflection total scores ($r= 0.22$), which strengthened at the high end of professionalism scores; those scoring in the highest quintile on professionalism (105-110) displayed a strong tendency to score above the mean on self-reflection ($P = 0.013$). Of the self-reflection sub-scores, “need for self-reflection” was most strongly correlated with professionalism total score ($r = 0.31$). Among all individual self-reflection questions, the item “it is important to me to try to understand what my feelings mean” was most strongly correlated with professionalism total score ($r = 0.36$). We found no significant relationships between demographic variables and scores or sub-scores.

Conclusion: We found a weak positive correlation between professionalism and self-reflection that became much stronger on the high end of professionalism scores. This result may represent the true relationship between the measures, or, in conjunction with a small range and high mean of professionalism scores compared to those found in the scale’s European validation study, may reflect that the professionalism scale requires recalibration in order to be used with a cohort of American medical students. Cutoffs for professionalism total scores were determined solely from the distribution of responses received, and further research is required to determine the contextual or “real life” implications of these professionalism score ranges and gauge the validity of the professionalism scale. We anticipate this will involve qualitative investigation via interviews or focus groups with medical students regarding their views of the relevance and validity of our professionalism and reflection measures. Ultimately, this should help confirm the weakly positive correlation demonstrated between self-reflection and professionalism and establish a more precise and relevant description of this relationship.

ABSTRACT #40

Everybody Wins: A Writing Group to Foster Emergency Physician Wellness

Authors: Hayley Neher, Arlene Chung

Purpose: Emergency medicine physicians suffer the highest risk for burnout across all medical specialties. Although most institutions provide basic wellness programs for their residents, the majority of these programs consist of isolated lectures or social outings. Some existing literature does support the use of storytelling and narrative to promote wellness for medical providers, but to the best of our knowledge, no such program has been published in emergency medicine. In order to address this need, we propose an innovative creative writing group designed to enhance resident wellness through facilitated reflection and peer-to-peer social support. We hypothesize that participation in our writing group will decrease burnout, increase resilience, and improve reflective capacity.

Methods: Participants will be 66 emergency medicine residents in a four-year training program with a pre-existing "family" support structure that consists of four randomly selected residents, (one from each PGY year) and one faculty member. Half of the families will be assigned to the intervention group (n=32 residents) and the other half will be assigned to the control group (n=34 residents). Intervention families will be paired to create four writing groups consisting of eight residents and two faculty members each. The writing groups will meet every four to eight weeks for a total of six times over the course of one academic year. Each resident will be required to produce at least two creative non-fiction personal essays during that time period. During each of the writing group sessions, two residents will present their essays for feedback and discussion facilitated by the faculty members based on the themes relevant to their essays. Control families will be similarly paired as the intervention families, but will engage in an unstructured social activity supervised by the faculty members instead of a writing group session.

Results: All residents will complete measures of burnout, resilience, and reflective capacity at the start of this study and at one year. Burnout will be assessed using the Maslach Burnout Inventory, resilience will be assessed using the Connor-Davidson Resilience Scale, and reflective capacity by the REFLECT rubric. The REFLECT rubric will be applied to a creative non-fiction personal essay written at the start of the study and at one year in response to a prompt (e.g. "Write about the last time that you cried about a patient."). Satisfaction surveys will also be distributed to all residents at the end of one year. Following the Kirkpatrick Model, we aim to demonstrate increased satisfaction (Level 1) and improved reflective capacity (Level 2), as well as decreased burnout and increase resilience in the intervention group compared to the control group.

Conclusion: By processing the experience of being an emergency medicine physician through writing and facilitated discussion with peers, residents may improve their own wellness while potentially improving patient care. These written essays also have the ability to be shared outside the profession in order to provide insight into the culture, unique stressors, and joy of working in medicine. We believe that fostering structured creative writing groups may be a way to focus the stresses of residency training into a creative product that benefits everybody, both inside and outside of our profession.

ABSTRACT #41

"Reflection Rounds:" Inspiring Residents' Professional Development by Nurturing Their Reflective Capacities

Authors: Krishna A. Chokshi, Erica Vero

Purpose: Self-reflection is an essential tool to foster professional and personal development during medical training. Residency represents a challenging time for developing physicians; burnout and compassion fatigue have been shown to increase during training. Although reflective writing is taught in some medical schools, few residency programs have integrated these practices. While Professionalism (PROF), Interpersonal and Communication Skills (ICS), and Systems-based practice (SBP) are ACGME competencies on which we evaluate our residents, there are few established ways to teach these skills. Our aim was to innovate a structured and reproducible course that employs the close reading of pertinent literature, guided writing, and facilitated discussion to promote professional development. We believe these methods offer new ways to inspire insight, empathy, and joy among training physicians.

Methods: We developed a curricular model called "Reflection Rounds," which is part of a Housestaff Wellness Curriculum. The course is oriented around collectively delving into the meaning of our clinical experiences and is presented as a space to explore ideas and interrogate emotions and ethical dilemmas. Sessions are required and conducted during protected time. Meetings are attended by a faculty member and led by a fellow resident. Discussions include, "Grappling with Loss," "Negotiating Cultural Differences," and "Joy in Practice." Sessions are structured around selected readings — prose, poetry, or journalism and time for written reflection. A sample prompt has been, "Reflect on a time when you felt like an outsider." Participants then share their writing or reflections on the process of producing their personal narrative.

Results: We gave interns a survey based on ACGME core competencies before their first "Reflection Rounds" session. 14 of 28 interns surveyed rated their ability to reflect on their work as "insufficient." 10 interns reported they seldom consider empathy in patient interactions. Another survey we conducted of 26 residents after sessions demonstrated that 73% feel that "Reflection Rounds" has the potential to improve their practice and positively impact their rapport with patients. Future steps will involve administering the Jefferson Scale of Empathy to participants before and after their exposure to these sessions.

Conclusion: Through exposure to the humanities and personal writing in a facilitated context, we are seeing that residents are welcoming the opportunity to cultivate aspects of themselves that otherwise would have been neglected during training. "Reflection Rounds" is a tool to foster skills defined within the ACGME core competencies of Professionalism, Interpersonal Communication Skills, and Systems Based Practices, as well as a vehicle through which we aspire to positively affect the culture of our program. To this end, it stands to be a model to inspire physician leaders who will create meaningful and empathic therapeutic relationships with their colleagues and patients.

ABSTRACT #42

Development of the Return to Work Tool for Primary Care Providers for Low Back Pain Patients: A Proposed Pilot Study

Authors: Lisanne C. Cruz, Parag Sheth, Svetlana Abrams, Eliana Cardoza, Allison Bean, Arlene Lazaro, Ismail Nabeel

Purpose: Low back pain (LBP) is the most common cause of disability in American adults under the age of 45. Primary care physicians are commonly the first medical practitioners to assess a patient with LBP and are, therefore, in a unique position to offer reassurance, treatment options, and return to work recommendations. Research has now demonstrated that rapid return to normal activities of daily living is generally the best activity recommendation, however, primary care physicians often feel ill prepared to make such recommendations. We hypothesize that primary care physicians themselves should be educated on the use of clinical guidelines with regards to LBP management and return to work (RTW) to direct the care of their patients themselves. Therefore, the purpose of our pilot project is to develop such guidelines in the form of an accessible and adaptable tool.

Methods: Potential subjects were recruited from primary care offices affiliated with Mount Sinai in all boroughs. All licensed physicians in a primary care setting who see patients over the age of 18 years presenting with acute low back pain and are currently employed are eligible for participation in this study. Return to Work Guidelines for Low Back Pain Patients in a Primary Care Setting were developed and integrated into the Electronic Medical Records (EMR) which will be readily used in a primary care setting. Primary care providers will be randomized with or without the integrated tool. Using ICD 10 codes to identify patients with LBP, charts will be retrospectively reviewed to assess if primary care physicians are identifying the type of work, level of disability and recommendations regarding return to work. At 6 months, a statistical analysis will be used to determine if the tool is both adaptable and accessible to be used in the primary care setting.

Results: While recruitment and data analysis are ongoing, the expected results from this project will contribute to the development of a standardized approach to back pain management in the primary care setting. Providing education to primary care physicians will not only enhance their knowledge on how to care for patients with low back pain, but will also improve communication between primary care physicians and other subspecialties that treat these patients.

Conclusion: This project has enabled the researchers to expand the field of low back pain management as well as develop the understudied field of “return to work” as a way of minimizing overall disability through medical education and the use of innovative informatics.

QUALITY IMPROVEMENT

POSTERS 43 – 48

ABSTRACT #43

Intervention to Reduce Folate Lab Testing

Authors: John Di Capua, Irene Lee, Rena Mei, Sukrit Narula, Sarah Zarrin, Hyung Cho, Celine Goetz

Purpose: The prevalence of folate deficiency has dramatically dropped in the United States (US) since grain fortification was instituted 20 years ago. The testing for folate deficiency as a cause of macrocytic anemia is therefore rarely indicated, but healthcare providers still regularly test folate levels. The purpose of our intervention is to decrease unnecessary folate testing.

Methods: We identified that the coupling of vitamin B12 and folate orders in our electronic medical records (EMR), the inclusion of this coupled order in numerous order sets, and a lack of knowledge regarding the indications for folate testing contributed to provider ordering behavior. We started with educational interventions: informational posters and hand-outs pasted onto cereal boxes, giveaways for the house staff, integrated teaching points during resident didactic sessions, and brief student-led presentations during the Division of Hospital Medicine Grand Rounds to educate providers. As the intervention proceeded, we provided individual feedback emails to the hospitalists and internal medicine house staff regarding their personal ordering patterns. In addition, removing the combined B12 and folate order and modification of order sets in the EMR was implemented at the end of September 2016.

Results: We compared provider ordering patterns between the 12-month pre-intervention period and the 10 months since our intervention started (Feb 2016-Oct 2016). Thus far, overall folate testing has decreased from an average of 91.17 tests per month pre-intervention to an average of 13.0 tests per month by October 2016, a 85.7% reduction. In addition, vitamin B12 ordering increased from an average of 17.92 tests per month pre-intervention to an average of 70.0 tests per month by October, a 390% increase, indicating providers are still ordering necessary labs for their patients. At our institution, serum folate is quoted as costing $112 per test, prompting an extrapolated annual savings of $105,060 in the Department of Hospital Medicine. We expect increasing reductions in healthcare expenditures as our intervention is rolled out across Mount Sinai Hospital.

Conclusion: We aimed to develop an intervention that engaged our target audience in changing ordering patterns for a lab test with minimal utility in the age of fortified grain. Provider education needs the support of the EMR to be as effective as possible. Our next steps include creating a pop-up in the EMR to educate ordering providers and rolling out similar interventions to non-Internal Medicine departments, i.e. psychiatry and neurology. While this is only one lab test, it can be easily eliminated for >99% of our patients, thus providing excellent value for physician ordering behavior pattern modification.

ABSTRACT #44

The Person behind the Patient: A Deeper Look at Standardized Patient Work in Medical Education

Authors: Natalie Cohen

Purpose: Standardized patient (SP) encounters have become integral in the professionalization of medical students. The vast majority of research on standardized patients has focused on SPs as a resource, and evaluated SP programs based on metrics of accuracy, reliability, consistency and cost. Although empathy is a central value in medical education, and the learning goal of standardized patient encounters, there has been little research focused on the impact of the cognitive demands of this role enactment or its lasting effects on the SPs. Drawing from the experiences of SPs themselves, this study aims to develop a more holistic analysis of standardized patient work and highlight issues that should be addressed to ensure the health and safety of those who are educating future healthcare workers.

Methods: This study draws on 6 months of ethnographic research and 14 interviews with SPs and SP program staff in the NYC area.

Results: An ethnographic perspective that included the voices of these workers reveals SP work to be a highly complex social phenomenon that involves intense cognitive and emotional labor, and a willingness to be physically and emotionally vulnerable. Among the intricacies of this work are a need to balance role-play improvisation with standardization, a cognitive demand to decide what an "ordinary" patient would say while simultaneously remembering a checklist for evaluation, and a pressure to authentically embody highly emotional roles to the same standard repeatedly over time. Many SPs spend hours of unpaid time working to embody their characters authentically so as to create meaningful interactions, but this work towards authenticity can have an emotional impact on the SP after the encounter. In addition, there is a prospect of being physically hurt on the job, as students practicing their physical exams on SPs are inexperienced. This is juxtaposed by the fact that SPs work hourly and often lack benefits such as health insurance. Despite being surrounded by doctors, SPs cannot be treated by them for any real medical condition. As many SPs reflected, there are improvements that could be made in the working environment that would allow them to improve their work, one of which was a need for breaks between sessions in order to mitigate the psychological ramifications of embodying an emotional role multiple times successively. Interviews showed that SPs take on their roles willingly due to their genuine motivation to create better working physicians of tomorrow, but would appreciate if efforts were made to better their working conditions.

Conclusion: Through analyzing SP work, this study found aspects of SP working conditions that, if changed, could allow for a better working environment for SPs and better medical training for students. While SPs do find their work meaningful, they would like to see changes in their working conditions, and, given that SP work is clearly a highly involved form of labor, they ought to be heard. With the rise of SP use in medical education, the realities of this work must be considered as programs transform over time. This study ultimately urges the community of medical educators to acknowledge the person embodying the SP—as a person and medical educator, not just an educational tool—and to take on the political, social and economic realities of their working conditions through research and recognition.

ABSTRACT #45

Evaluating the Challenges in Creating the Medical Student Performance Evaluation (MSPE) Letter: Are you satisfied with your workflow process?

Authors: Alecia Williams*, Grace Oluoch*

Purpose: Every year medical schools are tasked with creating customized Medical Student Performance Evaluation (MSPE) letters for their graduating students, but not all schools have the technology to efficiently support this process. The MSPE letter is used by program directors to select residency applicants. The purpose of this study is to understand the administrative workflow challenges with tracking and creating individualized MSPE letters. We hypothesize that a fully automated system and standardization could improve the workflow process.

Methods: A qualitative study of the MSPE workflow process was conducted in order to gain knowledge of the current practices amongst medical schools. A preliminary survey composed of three questions was sent to the Group on Student Affairs (GSA) listserv. A semi-structured phone interview was carried out with the Deans of Student Affairs and administrators from each of the medical schools who responded to the preliminary survey. The phone interviews consisted of 12 questions that focused on their procedure for gathering student information, and their limitations. The interview questions entailed a combination of Likert scales and open ended questions. The interviews were recorded and transcribed manually. After transcription, the interviews were coded for major themes.

Results: A total of 12 medical schools were interviewed, with each interview lasting an average of 30 minutes. Of the 12 medical schools that participated, none had a fully automated system for creating the MSPE letter. 75% were somewhat satisfied with their current workflow process, and 25% were extremely dissatisfied. 83% used multiple methods for collecting student information including a combination of partially automated systems, questionnaires, word documents, and emails. 17 % used the manual process of gathering information from various sources, and “cut, copy, and paste” information into a word document to create each letter. The remaining open ended responses were analyzed and coded. The following central themes emerged when participants described their distress with their current workflow process: 1) time consuming 2) labor intensive 3) multiple database systems 4) error-prone 5) redundancy/duplicate data entry 6) shortage of resources and 7) lack of standardization.

Conclusion: There are significant differences amongst medical schools regarding their methods and procedures for creating the MSPE letter. None of the respondents felt that their workflow was efficient. These results support the hypothesis that a fully automated system and some level of standardization would improve the administrative workflow process. In an effort to ensure consistency, the Association of American Medical Colleges (AAMC) recently recommended revising the MSPE letter format in order to standardize this process. The primary limitation of this study was the small sample size, which does not fully represent the majority of AAMC medical schools. Future studies should further examine why some medical schools are trepidatious about fully automating their workflow process.

*First co-authors, contributed equally to this work

ABSTRACT #46

Building the Safer High Quality Physician for the Future: UME Curriculum in QI/Patient Safety

Authors: Brijen Shah, Rainier Soriano, Shashi Anand, Marc Napp, Dennis Chang

Purpose: The purpose of the InFocus 5, 6, 7 Quality Improvement (QI) and Patient Safety (PS) program is to build a foundation for graduating medical students to have the knowledge, skills and attitudes to function in the 21st century healthcare environment. The course objectives are to define QI/PS terms, to cultivate and value safety and improvement science, and to develop skills in using common QI tools.

Methods: This study was a prospective observational study of 145 third year medical students. The course occurs in three separate one week blocks where approximately 50% of the week is devoted to QI/PS. The entire class participated as part of the required curriculum. The curriculum was developed by a steering committee of educators and content experts. The curriculum was informed by published curricula and experience, the ACGME Milestones in systems based practice and practice based learning and grounded in experiential and behavior based learning, using mixed learning methods. Assessment was through MCQ and pre-post surveys. Outcomes were change in knowledge based on MCQ (>75% of class scoring correctly) and change in attitude on survey items.

Results: Students were surveyed after each of the three curricular weeks and again at the end of the IF 5, 6, 7 curriculum and took a multiple choice exam. In the domain of patient safety, 5 out of 6 attitude statements improved including explaining the hospital's event reporting system and appreciating systems contributions to adverse events; students answered 66% of the knowledge MCQ items correctly. In the domain of Just Culture, there was a 16% increase in the number of students who felt competent physicians can be involved in adverse events; 100% of MCQ items were answered correctly. In the domain of QI, 90% of students stated they could create a process map and answered MCQ questions about process maps correctly. Students could identify publically reported QI measures but were challenged to distinguish process, outcome and balance measures (mean number of students with correct response was 80%).

Conclusion: A course in year 3 of medical school can help to change some attitudes around QI/PS and aid in foundational knowledge and skill development which will prepare students for GME training in these topics.

ABSTRACT #47

Reaching New Heights: A Quality Improvement Initiative to Assess and Improve Osteoporosis and Vertebral Fracture Screening in a Geriatric Outpatient Clinic

Authors: Rex Alvin Paulino, Vernon Clifton, Chad Hines, Sara Suleman, Deepa Ramamurthi, Christine Chang

Purpose: Osteoporosis (OP) affects over 40 million Americans and is silent until complicated by fractures. OP has a high mortality rate with 25% of patients dying within 6 months of a hip fracture. In addition, 66-75% of individuals who develop vertebral fractures are asymptomatic. Accurate height measurement, based on the National Osteoporosis Foundation, should be done annually and serves as a marker for OP and vertebral fractures. However, documentation of heights in the electronic medical record is lacking, inaccurate or inconsistently measured. Our project aims to understand the process and its barriers surrounding height measurement in the clinic.

Methods: We used a randomized sample of 50 clinic patients taken from 5 fellows' patients who visited the clinic at least once in the prior year. The sample was split 1:1 by those without any heights ever measured and those with heights documented in the EMR. The sample included patient demographics, comorbidities, and functional capacity. A questionnaire was developed and administered anonymously to the clinic staff and providers to gather the understanding of current knowledge and process. Results were grouped by category. Education sessions were created to address any deficiencies identified and administered in small group sessions. Employee stress levels before and after interventions were assessed using questionnaires as a balancing measure. We monitored heights checked subsequent to the education sessions. Results were compared to the baseline rates.

Results: 24% of our clinic patients sampled have not had their height checked (including those in wheelchairs). 40% of patient’s heights were checked outside of our clinic. 36% of able-clinic patients had their heights checked annually. 5% of able patients seen over 10 times had no heights checked. Subsequently, 63% of our sample has not had the recommended DXA screen. Only 4% of our sample had documentation of immobility and subsequently were deemed "unable" to get height. Interestingly, checking patient height was not correlated to increasing patient age. No staff identified the recommended annual height check, while 86% of providers identified an annual height check as a requirement. Furthermore, 29% of providers thought height should be checked at every visit. 86% of providers identified OP as a reason for checking heights with only 29% identifying height loss as a method for assessing vertebral fracture risk. Barriers identified for height measurement included immobility, time constraint, access to equipment, responsibility assignment, patient refusal or inability to follow directions. Intervention Results: Preliminary results after the intervention show an improvement for all categories (heights checked on initial visits, heights checked for annual assessments, and heights checked in patients seen frequently without heights ever documented).

Conclusion: Serial height measurements are an easy, practical method to monitor treatment efficacy and screen for vertebral fractures in accordance to the National Osteoporosis Foundation. By identifying barriers and improving the process of height measurements in our clinic, the accurate documentation of heights in the EMR will help providers deliver better care to patients at risk for osteoporosis and/or vertebral fractures.

ABTRACT #48

Use of an Anesthesia Workstation Barrier Device to Decrease Contamination in a Simulated Operating Room

Authors: Samuel Hunter, Daniel Katz, Andrew Goldberg, Hung-Mo Lin, Samuel DeMaria Jr.

Purpose: With frequent, close patient contact, anesthesiologists are key players in infection control. Even when proper hand hygiene is employed, after airway instrumentation, bacterial contamination (with oral flora) can still be found on the anesthesia workstation, IV stopcocks, and other equipment. While traditional barrier techniques (e.g., gloves) are well accepted, a physical barrier covering the anesthesia workspace may reduce infection rates by decreasing the initial contamination following airway management. We performed a study in a simulated operating room using a validated protocol to determine whether a barrier over the anesthesia workstation during induction and intubation may reduce the risk of contamination of the area and possibly, by extension, the patient.

Methods: Forty-two attending and resident anesthesiologists unaware of the study design were enrolled in individual simulation sessions in which they were asked to induce and intubate a human simulator which had been prepared with fluorescent marker in its oropharynx as a marker of potentially pathogenic bacteria. Twenty-one participants were randomly assigned to a control group, whereas the other twenty-one performed the simulation with a barrier device covering the anesthesia workstation. A simulated induction and intubation were performed following a standardized protocol. After the simulation, an investigator examined fourteen target sites with an ultraviolet light to assess spread of the fluorescent marker of contamination to those sites.

Results: The difference in rates of contamination between the control group and the barrier group were highly significant, with 44.8 +/- 2.5% of sites contaminated in the control group versus 19.4 +/- 2.6% of sites in the barrier group ($p<0.001$). Several key clinical sites showed significant differences in addition to this overall decrement. Sites targeted by the barrier device had the highest rates of contamination in the control group and experienced the largest degree of reduction in contamination rate of all sites examined. The anesthesia circuit, manual pressure valve, and ventilation bag were contaminated over 75% of the time in the control group; our intervention reduced contamination by roughly two-thirds.

Conclusion: The results of this study suggest that application of a barrier device to the anesthesia workstation during induction and intubation may reduce contamination of the intraoperative environment. The degree of reduction in contamination we observed was similar to that observed with methods that have been implemented in practice (i.e., double gloving) after they were proven to be effective. The barrier device is unique in that it relies less on individual practitioner compliance as compared to hand hygiene. Implementation and investigation of this device in a live OR are necessary next steps.

SIMULATION

POSTERS 49 – 54

ABSTRACT #49

Ballistic Gelatin Training Models versus Human Models for the Training of Emergency Medicine Resident Physicians in the Sonographic Evaluation of Deep Vein Thrombosis

Authors: Turandot Saul, Michael Doctor, Patrick Olivieri, Gabriel Rose, Nadia Baranchuk, Ryan Tansek, Aaran Drake

Purpose: Previous studies have shown that trained emergency physicians can perform DVT diagnostic ultrasound with high sensitivity and specificity. Ultrasound education involves a cognitive as well as a technical component. The technical aspect can be unaffordable as commercially available phantoms that model normal and abnormal anatomy can cost thousands of dollars. Simulation based teaching has been shown to increase learner confidence and to decrease time, complications and cost. This study aimed to compare the standardized clinical examination (technical evaluation) and written examination scores (cognitive evaluation) of sonographers who trained on simulation models versus human models.

Methods: This was a prospective study of post-graduate year (PGY) 1-3 emergency medicine residents conducted during their weekly didactic conference. IRB approval was obtained. Training consisted of a 1 hour didactic lecture followed by hands on training. Half of the group did the hands on portion of their educational session on live models and the other half worked with a simulation phantom. Residents in the simulation group scanned the two gelatin phantoms, each of which contained areas of normal compressibility and abnormal non-compressibility. Residents in the human model group scanned two live models, the patient with the DVT and one of the healthy volunteers. Knowledge assessment for all bedside ultrasound applications requires an evaluation of the technical component of image acquisition as well as the ability to interpret findings. The technical evaluation was performed by means of an objective standardized clinical examination (OSCE) with 9 critical items. The residents then reviewed 14 DVT ultrasound examinations that were obtained from an archive of previously submitted studies from our department. The studies included both true positive as well as true negative findings. Data sheets were scored as +2 points for the correct interpretation of a positive or negative scan, and +1 point for correctly identifying a location of non-compressibility. Statistical Analysis System 9.3 (Cary, NC) was used for statistical analysis. Adjusted mean scores and p-values were calculated using the Mann-Whitney U Test.

Results: 32 emergency medicine residents were enrolled in this study. One resident did not fully complete the written exam at the end of the course, and their examination was not included in analysis. There was no statistically significant difference between either of the knowledge assessments for those who trained on the live model or simulated trainer when evaluated by PGY or as a group.

Conclusion: The traditional approach of bedside teaching of the technical component of sonographic evaluation for DVT in the ED can be difficult. We were able to create DVT phantom models using ballistic gelatin to train EM residents how to perform and interpret a compressibility study. The phantom models were inexpensive, durable, and easy to use. Differences in OSCE and written examination scores from EM residents who practiced on these phantoms were not statistically significant from EM residents who received technical training on human models. For this application, a ballistic gelatin phantom model may be as effective as training on human volunteers and is a cheaper, more readily available alternative.

ABSTRACT #50

Pediatric Residents' Success Rates at Obtaining Ultrasound Guided Peripheral Intravenous (USGPIV) Access

Authors: Amy Toporowski, Emily Hertzberg, James Tsung

Purpose: The purpose of this study was to determine if a short training course, including simulation exercises, increased pediatric residents' utilization and success rates of USGPIV placement.

Methods: Pediatric residents were offered 1-hour of training on USGPIV including instructional videos and simulation exercises. Training was supervised by a Pediatric Emergency Medicine Attending and included successfully demonstrating identification of vessels in patient models and simulation of USGPIV placement on a model limb. An ultrasound machine was then made available for residents to use at their discretion. Data was retrospectively collected on the utilization and success rates in pediatric patients who had two prior failed IV attempts by PICU or NICU nurses.

Results: 8 of the total 37 residents trained made 14 attempts over a 1-year period, with total success rate of 35.7% (95% CI: 13.9-64.4). When compared to our institutions' rate of nursing success with traditional IV placement in children who have had 2 prior failed IV attempts the rate was similar at 35.4% (95% CI: 19.2-54.6). The adoption rate of USGPIV by residents was 21.6% (95% CI: 10.4-38.6%), and in all 14 attempts residents chose to forgo a traditional attempt, opting for USGPIV placement in 100% of scenarios.

Conclusion: Our educational intervention enabled pediatric residents to achieve success rates of USGPIV placement that was equivalent to that of PICU or NICU nurse IV placement success rate in pediatric patients who had at least 2 prior failed IV attempts. These results suggest that training pediatric providers in USGPIV placement may achieve success rates similar to PICU or NICU nurses in difficult access pediatric patients. Limitations of the study include the relatively small sample size and lack of data on pediatric residents' success rates at traditional IV placement. Our next steps including continuing data collection on IV placement in difficult access pediatric patients, and comparing pediatric residents' success rate at traditional versus USG-IV placement in this population.

ABSTRACT #51

The Effectiveness of a Novel Simulation Training Program for
Resident Rapid Response Team Leaders

Authors: Nitin Kabra, Angela Love, Lina Miyakawa, Paru Patrawalla, Pierre Kory, Samuel Acquah

Purpose: Although medical simulation has been shown to be superior to traditional education methods, there is minimal data on the effectiveness of simulation training for rapid response team (RRT) training. The aim of this study is to evaluate the effectiveness of simulation-based learning using the original and novel "ICRASHED" algorithm for RRTs on the self-confidence, knowledge and skills of internal medicine residents.

Methods: This was a single-center, retrospective study of a simulation-based educational intervention on RRT events for 28 internal medicine residents in post-graduate years 2 and 3 from an urban academic center. Pre- and post- surveys for self-confidence and self-skill assessment on a graded Likert scale were completed on the day of training. The residents underwent a 3-hour simulation-based training, using an institutional learning model. Skill performance was evaluated by a chief medical resident based on the components of the ICRASHED algorithm. Passing score was defined as greater than 65% correct.

Results: Self-confidence and self-skills assessment improved significantly after training. The median (IQR) pre- simulation self-confidence was 3 (2-4) to 5 (4.5-6) post-simulation, ($p = 0.02$). Self-skill assessment score improved from 2 (2-3) to 3.5 (3-4) ($p < 0.001$). Residents performed well on the skills-based checklist with an overall score of 75% (67-81), with a 100% pass rate. The correlation of self-confidence assessment scores to overall test scores showed a trend towards a positive association (Chi Square 2.45, $p = 0.48$).

Conclusion: Simulation-based training in ICRASHED, a novel RRT algorithm, improves resident self-confidence, self- skill assessment and technical skills in a simulated environment. Deliberate practice with a defined learning model ensures that each learner has achieved the necessary skill set to lead RRTs on patients. This study provides a preliminary model to train residents for the tense and chaotic environment of a decompensating patient.

ABSTRACT #52

Can a Cognitive Errors Algorithm Improve Clinical Decision-Making among Medical Students in a Simulation-Based Course?

Authors: Sumintra Wood, Christopher Strother, Kaushal Shah

Purpose: The study of cognitive errors in emergency medicine has become increasingly popular as physicians seek ways to minimize patient morbidity and mortality. However, most studies on cognitive errors have been retrospective and thus prone to hindsight bias. Furthermore, it is unclear whether an understanding of cognitive errors alone can prevent emergency physicians from making the same types of errors while working in the emergency department. A cognitive errors algorithm taught to trainees may be a better approach towards improving patient safety. The focus of this pilot study was to introduce a cognitive errors algorithm to 4th year medical students in a simulation-based course and evaluate whether it improved their performance in SIM cases and enhanced knowledge retention compared to students without prior cognitive errors training.

Methods: This was a prospective randomized study involving 10 4th year medical students enrolled in a simulation course on the management of floor emergencies. Medical students were randomized to group 1 (n = 5), which received an introduction to cognitive errors and the use of a cognitive errors algorithm, or group 2 (n = 5), which performed their cases before receiving an introduction to cognitive errors. Both groups were evaluated during their cases for completion of critical actions utilizing a standardized checklist and also completed a pre-test and a one- month delayed post-test. All medical students completed a survey about cognitive errors in medicine.

Results: There was no change in average score from pre-test to delayed post-test in both groups. On review of the checklists of critical actions undertaken during the simulation cases, group 1 completed more critical actions than group 2 in 3 out of the 4 simulation cases and achieved the correct diagnosis in all of the cases, whereas group 2 determined the correct diagnosis in only 3 out of the 4 cases. 90% (9/10) of medical students surveyed were very interested in learning more about cognitive errors and planned to incorporate their knowledge of cognitive errors into their clinical management. All of the medical students in group 1 (5/5) agreed or strongly agreed that the cognitive errors algorithm was a helpful strategy for the diagnosis and management of patients.

Conclusion: Although there was no difference among the groups in terms of knowledge retention on multiple-choice tests, the group with cognitive errors training performed better at completing critical actions and achieving the correct diagnosis in a simulation setting. Overall, medical students were enthusiastic about the study of cognitive errors and believed that a cognitive errors algorithm could be a helpful diagnostic aid. Larger studies using different modalities such as video assessment or in-situ simulation to assess trainee performance and knowledge retention are needed.

ABSTRACT #53

Introducing a Moment of Silence Using Simulation-Based Training as an Intervention in Coping with Patient Death among Residents in the Emergency Department: A Pilot Study

Authors: Annie R. Katz, Shannon McNamara, Priscilla Loanzon, Jessica Leifer, Felicia Hercules, Michael Doctor, Keith Rose

Purpose: Emergency medicine physicians are frequently faced with the challenge of witnessing patient death. Chronic exposure to patient death in the emergency department can lead to physician burnout, resulting in depersonalization, low morale, and poor patient care. The primary purpose of this study is to evaluate the effectiveness of using simulation-based training for introducing a moment of silence to emergency medicine residents as a novel technique for coping with patient death in the emergency department. A moment of silence offers time for a team of health care providers to honor the life and loss of a patient.

Methods: This project is a type of prospective study and is estimated to be completed in three months. It will use a mixed-method research approach. Approximately twenty-five emergency medicine residents (N = 25) from Mount Sinai St. Luke's – Mt. Sinai West Hospital will be scheduled to attend a voluntary educational simulation - based training session. A total of four 45-minute simulation-based training sessions will be conducted and include 6-7 residents per case. The simulation scenario involves a patient who died after unsuccessful resuscitation efforts. Once the patient is declared dead, a simulation staff member will introduce the concept of a moment of silence.

Anonymous pre-and post-simulation surveys will be distributed to the residents about death in the ED, resident coping skills, and their views about incorporating a moment of silence into their daily practice. A month after the simulation course, an anonymous follow-up survey will be sent electronically to the initial participants to determine perceived usefulness of a moment of silence as a coping technique and whether a moment of silence is being incorporated into their clinical practice after the simulation-based training course. Quantitative and qualitative data from these three survey questionnaires will be matched and integrated then analyzed to evaluate the effectiveness of using simulation- based training in introducing a moment of silence as a coping technique among emergency medicine residents. A two- round modified Delphi technique was used in constructing all three survey questionnaires.

Results: This simulation-based training will use descriptive statistics to analyze the results. The actual number of emergency resident-participants and any attrition will be reported. Empirical and analytical analyses will be based on the responses of the participants on the three surveys in order to make any conclusions and recommendations. The level of significance will be set at .05 (p value =0.05 or 5%)

Conclusion: In this section, the conclusions will be reported regarding whether simulation-based training can be used to introduce the concept of a moment of silence to emergency medicine residents as an innovative technique for coping with patient death in the emergency department.

ABSTRACT #54

Training Novice Practitioners in Ultrasound Guided Intravenous Access Using an Anatomically Correct Simulated Trainer Created From Ballistic Gelatin

Authors: Michael Doctor, Annie R. Katz, Jessica Leifer, Felicia Hercules, Shannon McNamara

Purpose: Obtaining intravenous (IV) access is difficult and sometimes impossible using standard techniques. Practitioners often attempt to insert an IV under ultrasound guidance, which allows for deeper and larger veins to be visualized. This procedure requires practice to master the hand-eye coordination necessary to visualize the blood vessel via ultrasound while maneuvering an IV needle and catheter. Often, this procedure is taught using commercially available trainers or with patients under the supervision of a senior physician. Learning on simulated trainers has many advantages including patient safety and opportunity for deliberate practice. We have created a novel technique to create ballistic gelatin trainers as an inexpensive and versatile alternative to commercial ultrasound procedural task trainers. These models are custom made to replicate human anatomy and can be used for many different applications. Subsequently, we are building a curriculum detailing how to create these trainers and how they can be used to efficiently train novice providers to insert ultrasound guided peripheral IV lines.

Methods: Ballistic gelatin trainers will be created by the Emergency Department simulation team prior to the training session. Learners will be approximately 10-20 Sinai Research Associates (SRA) and Internal Medicine residents who have limited clinical experience with ultrasound guided IV insertion. The learner will initially view a 15 minute video detailing how to insert an ultrasound guided IV prior to the course. Trainees will then be divided into small groups for a deliberate practice session. An instructor will demonstrate the correct procedure, guide trainees through multiple practice attempts, and provide feedback. After trainees feel comfortable performing the procedure, they will be evaluated with an objective structured clinical examination (OSCE).

Results: OSCE scores will be de-identified and aggregate data analyzed to determine how many trainees were able to reach a defined level of competency after the course.

Conclusion: Ultrasound guided IV access is a difficult procedure which requires training and practice. We expect to show that novice practitioners can be trained using an inexpensive simulation trainer which resembles human anatomy.

AUTHOR INDEX