Curricular Innovation

'Medical Examiner's Jurisdiction: A Vignette Based Approach to Resident Education'

Presenter: Mark A Giffen, Jr DO

Problem: On review of Medical Examiner referrals to the Pathology Department, it was determined that Pathology Residents had difficulty making determinations as to what types of cases fall under Medical Examiner's jurisdiction. Medical Examiner's jurisdiction is defined by statutes laid out by the government of North Carolina. Failure to make an appropriate determination can result in accidental release of decedents, delay of release to funeral homes and/or delay in examinations which can lead to undue stress on their loved ones.

Program Objectives: Develop a new vignette based educational program for the most commonly referred cases for which residents had difficulty in making appropriate determinations.

Description of Program: A written guide was developed based off the 9 most commonly referred case types which resulted in errors. Each referral type had a base vignette with decision trees to determine the appropriate types of information needed to make a determination about jurisdiction. Each decision tree was then summarized with the ultimate determination of which cases should be accepted under the Medical Examiner's jurisdiction. Other commonly experienced problems were also integrated into the vignettes as reference materials.

Evaluation/Assessment: All 18 pathology residents underwent a written 5 question, multiple choice pre-test prior to the guide being made available to them. The questions were based off scenarios similar to those posed in the vignettes. After all residents had responded, a post-test with the same questions was administered but with the guide as a reference. The correct answers to the tests and individual scores were not made available until after all residents had completed the post-test. The post-test scores showed no statistically significant improvement in correct answer choices (likely due to small sample size). Anecdotal evidence has shown an improvement in information gathering and documentation in resident referrals as well as question content at the weekly resident call conference. Some particular referrals do still cause significant problems for some residents. The referral system

does not allow for tracking of cases which have jurisdiction decisions 'changed' by their attending physician.

Conclusions and Lessons Learned: This approach has improved resident decision making and comfort with determining medical examiner's jurisdiction. Challenges included identifying appropriate case materials and developing a useful but quick reference guide.

Medical Education Research

'Fellaship: A Peer-Facilitated Social Support Group for Preclinical Medical Students'

Authors: Andrew J. Recker, BS; Kristen Confroy, BS; Zechariah Harris, BS; Lauren Himes, BS; Matthew P. Jamison, BS; Brendan Kemple, BS; Stacey Schmauss, EdD

Objective: Medical students who participate in Fellaship will attend peer-facilitated meetings resulting in self-reported improvement in social support, reduced burnout and better performance on the USMLE Step 1 exam by the end of the eighteen-month preclinical curriculum.

Background: Medical schools are recognizing the need for intervention to address the high stress environment contributing to burnout in medicine. One area of focus has been the need for a strong sense of community and peer support. This study examined a program implemented at Wake Forest School of Medicine to target community and fellowship among preclinical medical students.

Design: Our program, 'Fellaship', is a peer-facilitated social support group for preclinical medical students. 11 meetings were hosted on a volunteer basis in the students' homes. The host student(s) prepared a meal representative of their family's culture and facilitated a group discussion on a topic of their choosing; examples of chosen topics were servant leadership, mental health, and time management. School funding was provided for each meal. A survey was administered to students present at the tenth meeting and later USMLE Step 1 scores were reported by participants.

Outcomes: 13 students attended the first meeting and 42 attended the last, with an average of 21.7 students per gathering. The average budget per meeting was $172.72. Survey results demonstrated that because of attendance at Fellaship, students felt more connected to other students (82% strongly agree, 18% agree), felt a sense of community at school (88% strongly agree, 12% agree), able to reset after a difficult exam (94% strongly agree, 6% agree), and were energized to continue medical training (82% strongly agree, 18% agree) (n=17). Average USMLE Step 1 score of Fellaship particpants was 246.8 (8.6) (n=13) compared to the class average of 234 (16) (n=132) (p<0.01).

Discussion: Fellaship is an effective and inexpensive program for building community, preventing burnout and improving academic performance. We believe the success is due to the non-mandatory,

peer-facilitated nature of the program. These findings may be limited by availability bias. Due to a low administrative burden, this format is highly adaptable to other medical schools.

<u>**Curricular Innovation**</u>

'Single Online Resource Simplifies Surgical Resident Education'

Authors: Ashlee E. Stutsrim, MD; Maggie E. Bosley, MD; Clancy J. Clark, MD

Problem: Resource overload overwhelms time constrained surgical residents impeding efficient learning. Multiple resources are available with proposed curricula; however, these platforms vary in reliability (i.e. links do not always work, resources out of date) and user-friendliness (i.e. ease of navigation). In addition to online resources, there are multiple textbooks, podcasts, and video resources available. Residents looking to study every day spend a significant amount of time looking for reliable resources and often run out of time to review what they find. One website that is accessible on all platforms (i.e. cell phone, computer at work and home) containing reliable, up-to-date, user-friendly information is lacking from surgical education.

Program Objectives: For the 2019-2020 academic year, we sought to create a platform that was readily available to general surgery residents containing up-to-date, useable, reliable resources.

Description of Program: Our Assistant Program Director works with an education committee composed of senior residents to create our curriculum. The committee creates goals and objectives for weekly didactics, handpicks resources (both written and audiovisual), and collaborates with attending physicians to review advanced topics. Our website has six main sections – those specific to our curriculum will be highlighted below. It was made using WordPress, a popular web content management system.

The residency section contains a calendar outlining presenters and weekly topics according to the Surgical Council on Resident Education (SCORE) curriculum. Outlines include a SCORE module, textbook chapter, one learning objective for each resident year, and an audiovisual resource. Our education committee vets every module, chapter, and audiovisual resource. SCORE topics are assigned to residents (PGY 3-5) with careful attention to choose topics interesting to those residents. The calendar is completed before the start of the academic year. Materials presented are made immediately available on the website.

We also created anatomy and skills training sections targeting multiple learning styles and preparation for Fundamentals of Laparoscopic and Endoscopic Surgery.

The final section of our website focuses on the American Board of Surgery In-Training Exam (ABSITE). It includes study guides and review presentations. Lastly, it includes a sample study schedule organizing selections from a review text, question bank, and audio resource so residents complete review of all three resources before the ABSITE.

Evaluation/Assessment: General surgery residents (PGY 2-5) completed an online, voluntary survey with a 70% (16/23) response rate. 94% (n=15) used the website within the last year and 67% (n =10) access it on a weekly basis. All respondents reported the website improved their satisfaction with basic science education curriculum and 93% (n=14) reported it decreased the time they spent looking for educational resources. Residents provided feedback comments regarding the website and their responses were all positive.

Conclusions and Lessons Learned: An online platform with hand-picked resources facilitates efficient, personalized education for time-constrained surgical residents.

Medical Education Research

'Characterizing the Impact of Medical Student Clinical Exposure to Patients with Opioid Use Disorder on Perceptions of Stigma and Patient Care'

Presenters: Ewen Liu and Mohammed Moumen

Co-authors: Michelle Keating, MD, Family Medicine; Jon Goforth, MBA, Medical Education; Heather Douglas, MD, Psychiatry; Jennifer Oliver, DO, MPH, Anesthesiology; Fang-Chi Hsu, PhD Biostatistics/Data Science; Roy E. Strowd III, Med, MD, Neurology

Background: Opioid use disorder (OUD) is a growing public health crisis. While governing bodies in medical education (e.g. ACGME and AAMC) have called upon academic medical centers to incorporate training in OUD earlier in medical education, many residents and physicians do not feel comfortable working with patients with OUD. Social stigma promotes negative attitudes toward these patients and is a roadblock to delivering equitable and effective care. Opportunities exist to understand how medical schools can utilize existing clinical encounters to influence students' approach to patients to OUD and affect stigma.

Objective: This study sought to characterize medical students' experiences with patients with OUD, understand the features that make a patient encounter memorable, and explore the factors that influence future practice and/or stigma.

Methods/Design: A qualitative study was conducted using Grounded Theory and purposive sampling of fourth-year medical students (M4s) enrolled at Wake Forest School of Medicine. Data collection consisted of a free-text survey, followed by semi-structured interviews. The survey served to gain an understanding of student encounters with OUD, and interviews helped gain a deeper understanding of the impact on future practice and stigma. Thematic analysis was used to analyze data.

Results: A total of 170 out of 237 students (RR = 71.7%) completed the free-text survey, and twelve students were interviewed. Patient encounters occurred in three primary settings: Emergency Department, Inpatient Clerkship, or Narcotics Anonymous meetings. Clinical encounters were memorable when there was: conflict with patients/teams, complicated care, inadequate care, and relevance to the student's future career. Memorable encounters influenced future practice by changing students' approaches to: future treatment, future communication, or professionalism.

Regarding OUD stigma, students reported that these encounters made them: more aware of stereotypes in medicine, stereotypes in their personal lives, and generated actions that students want to take.

Conclusions: An influential clinical encounter has the potential to influence medical students' clinical management and stigma towards OUD. Not all encounters had a defining impact on students' stigma toward OUD. Emotionally-charged encounters impacted students through fostering empathy and perspective-taking. Medical schools need to create opportunities that will have lasting impact by encouraging students to fully engage with patients with OUD.

Medical Education Research

'Teaching Informed Consent in Medical Training: A New Educational Paradigm'

Presenter: Jessica Meister Berger, MD, JD

Background: Bioethical principles of autonomy, justice, beneficence, and non-maleficence underlie the modern practice of medicine.[1] Informed consent is the process by which physicians provide patients with the knowledge requisite to exercise autonomy. Consent is not a mere legal formality; it is a cornerstone of the physician-patient relationship.[2] While informed consent theory may be taught in medical school, a survey of anesthesiology residents revealed an absence of formal clinical instruction on obtaining consent. Rather, consent elements are gleaned from casual observation of colleagues or guided by prompts in the electronic consent form. Specialty- and patient- specific nuances influencing the process require accumulation of clinical experience which junior trainees lack. Scant clinical instruction represents both a medicolegal vulnerability and a disservice to patients whose autonomy depends upon a robust consent process.

Objectives: This project evaluates the effect of individualized, specialty-specific clinical education in informed consent on the quality of consent discussions by anesthesiology residents in an obstetric setting.

Methods: Review of the medical and legal literature was utilized to guide development of a detailed obstetric anesthesiology - specific metric containing elements of an ideal informed consent conversation. The metric included discussion of past medical history, discussion of the offered therapies for labor analgesia as well as alternatives, the risks, benefits, and implications of offered therapies, use of appropriate language (not medical jargon), patient-specific considerations such as use of a translator, recognition of incapacity/coercion, urgency of the situation, general demeanor, and discussion of a medical recommendation if indicated.

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[1] Beauchamp TL, Childress JF. Principles of biomedical ethics. 5th. New York: Oxford University Press; 2001.
[2] Gillon R. Ethics needs principles - four can encompass the rest - and respect for autonomy should be first among equals. J Medl Ethics. 2003;29(5):307.

A single observer trained in both law and obstetric anesthesiology observed 23 individual anesthesiology residents of all training levels perform consent discussions with patients admitted for labor. Residents did not know the reason for observation. Discussions were scored against the written metric. Individual 1:1 multimodal education was provided, including verbal feedback, review of pertinent medical literature, didactics on legal requirements of informed consent, observation of consent discussions with a patient, and anticipatory discussions of patient-specific therapeutic considerations.

Observation was repeated after educational intervention by the same observer. 97 total observations were performed; 59 of those prior to educational intervention, and 38 observations afterwards.[3]

Results: Deficiencies were noted across all levels. Prior to intervention, residents failed to describe the offered procedure of a labor epidural in 79% of discussions, and failed to disclose alternative therapies in 86% of discussions. 90% of discussions omitted one or more pertinent risks. In 79% of instances when a medical recommendation was clearly indicated, the residents failed to communicate a recommendation to the patient. "Never" events included failure to recognize questionable capacity and three instances of complete omission of consent. In those 3 cases, the patients were all medical professionals. Trainees excessively prioritized the signed consent form above the process of consent. Qualitatively, pre-intervention discussions were inaccurate, sparse, and often contained inappropriate terminology that was frightening to the patient (for example: "catastrophic", "disaster") or undermined the perception of medical competence.

Following educational intervention, there was improvement in all assessed parameters. Most notably, in instances in which a medical recommendation was clearly indicated, residents discussed that recommendation with the patient 100% of the time. Residents described the offered procedure and alternatives 87% and 68% of the time, respectively. Residents continued to omit pertinent risks nearly 40% of the time, highlighting an important area for ongoing education. Residents were noted to project greater confidence in their discussions with patients and utilized more professional language.

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[3] Robert D'Angelo, Richard M. Smiley, Edward T. Riley, Scott Segal; Serious Complications Related to Obstetric Anesthesia: The Serious Complication Repository Project of the Society for Obstetric Anesthesia and Perinatology. *Anesthesiology* 2014; 120:1505–1512

As a result of this study, clinical instruction in informed consent will be formally incorporated into the curriculum for the obstetric anesthesiology rotation.

Conclusions: Respect for patient autonomy requires informed consent or refusal, and a robust consent process enhances the patient-physician relationship. Individualized specialty-specific clinical instruction improves both accuracy and breadth of consent discussions by anesthesiology trainees in an obstetric setting. Future work entails expansion of this educational model beyond the obstetric anesthesia context through development of program-wide instruction in the clinical application of informed consent.

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Work in Progress

'Exploring the Impact of Early Exposure to Careers in Medicine on High School Students through the Wake Forest Immersion Institute'

Presenter: Sarah McCain, Wake Forest School of Medicine, Medical Student, Class of 2023

Co-authors: Christy Soares, Florida State University College of Medicine; Kayla Felix, Wake Forest School of Medicine; Lindsay Strowd MD, Wake Forest School of Medicine; Roy Strowd MD, Wake Forest School of Medicine

Background: The U.S. healthcare worker shortage continues to worsen and has been exacerbated by the COVID-19 pandemic.[1, 2] This study examines the impact of early exposure to healthcare on interest and perceptions of medical careers in high school students.

Objectives:

1. Describe the demographics of participants in the Wake Forest Immersion Institute
2. Quantify interest in various medical professions before and after course completion
3. Analyze qualitative reflections on course experience and future interests, including perceptions of social determinants of health in medicine.

Methods: High school students from 22 states, Washington D.C., and three countries attended the Wake Forest Immersion Medicine Institute between April and September 2020. The Medicine Institute is a two-week intensive virtual course where students learn about professions in medicine including physicians, nursing, certified registered nurse anesthetists, physical therapy, occupational therapy, and pharmacy. Students completed a pre/post-course survey quantifying their current exposure and interest in healthcare fields and provided written responses evaluating the impact of the course on their future careers.

Evaluation Plan: 873 pre- and 526 post-course responses were collected. 28.5% (249/873) reported having a family member in healthcare. 72.4% (632/873) reported "extreme interest" in a healthcare career before the course. From the qualitative post-course responses, 4 major themes emerged: career insight, social determinants of health, healthcare system and preventive health. Within the theme 'career insight', participants reported deeper understanding of the variety of career options and

motivation to obtain advising for future planning. The 'social determinants of health' theme encompassed responses showing increased understanding of the impact of socioeconomic status, race, education, and geographic location on health. Responses within the 'healthcare system' theme mentioned improved understanding of the complexity of care and potential for system-wide improvement. The 'preventative health' theme included comments expressing a greater appreciation for preventative health and ways to promote health, including social media use. 80.9% (424/526) reported "extreme interest" in healthcare careers following the course.

Conclusions: With the growing need for medical providers, programs like these are crucial to engage students early and establish interest in healthcare fields.[3] Early exposure programs may be a part of a multi-faceted solution to the growing healthcare worker shortage.[1, 3]

Works Cited

1.   Kirch DG, Petelle K. Addressing the Physician Shortage: The Peril of Ignoring Demography. *JAMA*. May 2017;317(19):1947-1948. doi:10.1001/jama.2017.2714

2.   U.S. physician shortage growing. AAMC.org.

3.   Zayas LE, McGuigan D. Experiences promoting healthcare career interest among high-school students from underserved communities. *J Natl Med Assoc*. Sep 2006;98(9):1523-31.

Curricular Innovation

'Exposing undergraduate students to medicine virtually during the COVID-19 pandemic'

Presenter: Anna Rose DiPentima

Co-authors: Julie Pechanek, Carole Gibson, PhD; Roy Strowd, MD MEd MS

Problem: Traditionally, shadowing programs allow pre-medical undergraduate students to ask questions, gain insight, and be exposed to a medical specialty and for physicians to educate and advise students on what life is like as a provider. Due to the COVID-19 pandemic and suspension of in-person shadowing, a virtual shadowing program was developed and employed in the fall of 2020.

Program Objectives: To describe the development of a virtual shadowing program for providing undergraduate students with an insightful and beneficial experience with faculty and medical students in the medical field.

Description of Program: Virtual shadowing involved two to three 1-hour meetings with a faculty physician and medical student via Zoom. The medical student interviewed the faculty followed by informal Q&A. To assess the program, a survey was distributed to undergraduate participants and a separate survey to physician participants as well as asking for feedback and comments from the medical students that moderated the conversations. Descriptive statistics were performed; thematic analysis was conducted of free text responses.

Evaluation: From September-November 2020, 81 undergraduate students, 20 medical students, and 22 physicians participated. A total of 48 meetings occurred. Undergraduate student feedback was universally positive (response rate [RR]=100%, 81/81); 65% strongly agreed and 34% agreed that the virtual session helped them gain new insight into pursuing a career in medicine (1% disagreed). Five themes emerged from student responses to the most valuable part of the sessions including (1) having access to both a physician and medical student, (2) learning about career pathways, (3) discussing work/life balance in the medical field, (4) gaining information about specialties, and (5) learning about the daily life of a physician. Physician feedback was also positive (RR: 72.7%, 16/22); 56% strongly agreed and 44% agreed that the program provided an opportunity to connect with undergraduates in a

rewarding way; and all agreed to participate again. Suggestions for the future included involvement of medical students from earlier years and combining virtual and in-person sessions in the future.

Conclusions: Virtual shadowing was rapidly implemented in response to suspension of in-person shadowing and provided undergraduates with insights for pursuing the medical field and medical school. The program added value above and beyond the needs of undergraduates during COVID-19 and is planned to continue post-pandemic.

Medical Education Research

'Just-in-Time Teaching (JiTT) Screencasts: A Randomized Controlled Trial of Asynchronous Learning on an Inpatient Hematology-Oncology Service'

Presenter: Patrick Kuhlman, MD, Hematology-Oncology

Co-authors: Donna Marie Williams, MD, Gregory B. Russell, MS, Amy Amornmarn, MD, Joshua Harbaugh, DO, Ryan Richard Woods, MD and Thomas Lycan, DO

Background: JiTT screencasts are effective teaching tools in some medical educational settings, but have not yet been evaluated for trainees on an inpatient adult hematology-oncology service (HOS). Our preceding pilot data identified six high-yield topics for this setting: venous thromboembolism, oncologic emergencies, sickle cell disease, hematologic emergencies, brain metastases, and spinal metastases.

Objective: This study objective was to determine if the addition of educational screencasts would change attitude among learners, measured as self-reported confidence for managing the covered clinical topics on a busy HOS.

Methods/Design: All internal medicine residents scheduled to start a rotation on an HOS were eligible. Participants underwent block randomization to the usual educational curriculum either with screencast access (treatment) or without it (control). Allocation was concealed but participants were not blinded. Upon completion of the rotation, all participants received an anonymous online survey about their experiences. The primary outcome was the change in attitude among learners, measured as their self-reported confidence for managing the clinical topics that were covered. All randomized participants received a $20 gift certificate upon completion of the study. Exploratory data was also collected from medical students, fellows, and faculty who opted to participate; they were given access to the screencasts without randomization.

Results: Over the 29 week study period (12/9/2019 - 6/30/2020), 67 out of 78 eligible residents (86%) opted to participate; these 67 residents all underwent randomization and were analyzed by intention-to-treat. Enrollment continued to completion of the study. The final participant response rate was high at 91%. Demographic characteristics were well-matched between the arms with the exception of a

higher prevalence of male gender (72% vs. 42%, p=0.022) in the screencast arm. The majority (64%) of residents in the screencast arm rated their clinical management comfort level as either "comfortable" or "very comfortable" as compared to just 21% of residents in the usual education arm (p = 0.0008), estimated difference = 43%, (95% CI 21%,66%) using a prespecified cumulative cutoff score. Nearly all participants on the screencast arm either agreed or strongly agreed that the screencasts improved their knowledge base in medical oncology (100%), will improve their care for cancer patients (92%), and enjoyed the format (96%). Most participants on the screencast arm felt that the intervention was optimal in terms of content (96%), length (82%), and accessibility (63%). Preferred viewing speed for the screencasts was 1.5x (52%). Nearly all participants felt that a similar database of screencasts would be helpful for all of their clinical rotations (96%). Medical knowledge as tested by a series of 6 clinical vignette multiple-choice questions was not different between the screencast and control arms (percentage correct: 77% vs. 80%, p=0.56). Burnout as tested by the Maslach Burnout Inventory was not different between the screencast and control arms in terms of total score (71 ± 12 vs. 69 ± 13, p=0.67) or personal accomplishment subscale (46 vs. 45, p=0.71). Exploratory data was also collected from 6 medical students, 8 fellows, and 6 attendings. Half of the students (50%) recommended the screencasts for the IM clerkship. Most fellows and faculty were neutral as to their interest in producing their own educational screencasts (77%) or contributing to a similar project (54%).

Conclusions: Resident trainees on a busy inpatient adult hematology-oncology service (HOS) found that a JiTT screencast series increased their clinical comfort level in the management of critical and commonly encountered patient problems unique to the HOS. The screencast content and delivery was overwhelmingly positive with nearly all (96%) wanting screencast series to be created for all their clinical rotations. Furthermore, as evidenced by the COVID-19 pandemic of 2020, novel distance and asynchronous learning platforms may be of increasing importance when traditional in-person methods are not feasible.

Work in Progress

'Evaluation of a Change in Teaching Modality to the Virtual Environment on the Neurovascular Ultrasound CME Course due to the COVID-19 Pandemic'

Presenter: JaNae Joyner, PhD, MHA

Co-authors: Aarti Sarwal, John Bennett, Bridget Francis, Dorothy Parnian, Maria Crawford, Louise Nixon, Erin Haynes, Michael Barker, Carty Beaston, Charles Tegeler

Background: Wake Forest School of Medicine has more than a 40-year history in hosting ultrasound continuing medical education (CME) courses. These courses have traditionally been held in person with hands-on scanning opportunities. Currently, the Center for Experiential and Applied Learning (CEAL) hosts the ultrasound courses in partnership with clinical departments such as Neurology. In 2020, the COVID-19 pandemic forced a shift in educational format from an in-person event to a virtual learning environment for the Neurovascular Ultrasound course.

Objective: To evaluate the learning experience and impact of the virtual teaching modality on Neurovascular Ultrasound CME course participants.

Methods: In October 2020, the education modality of the Neurovascular Ultrasound course changed from a five-day, in-person CME course with half-day didactic and half-day ultrasound scanning labs (CME=40 hours) to a four-day primarily didactic CME offering with live ultrasound scanning demonstrations (CME=32 hours). Participants were given the option of course participation on-site at Wake Forest Bowman Gray Center for Medical Education (n=10) or course participation virtually via the WebEx video conferencing platform (n=37).

Evaluation Plan: A feedback survey was administered via QR code and survey link placed in the WebEx chat box. With a 53.1% return rate (n=25) and using a scale of 1=strongly disagree to 4=strongly agree, we found that, while hands-on scanning practice would have added value to the course (3.9+0.3), participants agreed that the dual learning modality added value to the course (3.0+1.1). Participants were neutral about any unique benefits to be gained by participating in a course from a distance (2.9+1.0) and in their confidence about their ability to apply what they learned in the clinical environment (2.9+0.6). Qualitative comments were mixed indicating that it was a successful course

with excellent faculty, but participants desired better visualization of hand movements during demonstrations and a hands-on experience, especially by those who travelled to Winston Salem.

Conclusions: CEAL will transition back to in-person hands-on scanning labs for the Neurovascular Ultrasound course post-COVID-19, but is evaluating its entire ultrasound portfolio for what CME course components might be presented virtually.

Work in Progress

'Utilization of Return on Investment (ROI) Methodology to Evaluate the Return on Learning (ROL) in CEAL Educational Training Events'

Presenter: JaNae Joyner, PhD, MHA

Co-authors: Maria Crawford, Louise Nixon, Carty Beaston, Dorothy Parnian

Background: Today, there is a demand in areas of business, including healthcare and education, to connect investments in programs to organizational outcomes by demonstrating value and impact. In many cases, the programmatic value must outweigh the cost of the solution in order for the program to be sustained. The Center for Experiential and Applied Learning (CEAL) desired to implement return-on-investment (ROI) methodology via the ROI Institute Method in a project entitled Return on Learning (ROL) across its clinical enterprise portfolio of hands-on educational training events.

Objective: To complete a readiness assessment to ensure stakeholder inclination regarding ROL implementation and subsequently pilot a developed ROL evaluation tool prior to widespread implementation across the CEAL clinical enterprise portfolio of educational training events.

Methods: CEAL administered a modified electronic readiness assessment survey from the ROI Institute (https://roiinstitute.net/). Stakeholders included CEAL steering committee members and faculty/staff event champions currently holding educational training events within CEAL. Next, CEAL conducted a modified Delphi technique with the same stakeholders to narrow down questions on a general evaluation tool to five questions, and piloted that tool in 29 educational training events.

Evaluation Plan: The readiness assessment survey results (n=41) yielded an overall institutional score of 52.3 demonstrating per the ROI Institute scale that we were ready to build skills to implement the ROI process (15-30 = not a candidate; 31-45 = not a strong candidate; 46-60 = a strong candidate). Pilot of the general evaluation tool (n=339) utilizing a 1-5 Likert Scale (1=strongly disagree; 4=strongly agree) demonstrated high confidence to apply what was learned in the clinical environment (3.58±0.58), meeting the identified need (3.92±0.28), immediate application of use (3.86±0.37) and recommendation of the program/course to colleagues (3.94±0.26).

Conclusions: CEAL has moved forward with the ROL project. Based upon the pilot, CEAL has refined the general evaluation tool and has started implementation across the entire CEAL clinical enterprise educational training portfolio. CEAL is furthering the ROL project by evaluating the impact of training on patient outcomes using data from the electronic health record (EHR), piloting this approach on our ultrasound-guided IV program to demonstrate the feasibility of collecting this type of data.

Medical Education Research

'Postdoctoral Research, Instruction, and Mentoring Experience (PRIME)*:

A Pipeline Program to Promote Health Equity via Educational Workforce Development'

Authors: Allyn C. Howlett[1], TanYa M. Gwathmey[1], Manju Bhat[2], Debra I. Diz[1], Dwayne W. Godwin[1], A. Daniel Johnson[3], Jill Harp Keith[2], Judy Foxworth[2], A. Lynn Millar[2], Mesia M. Steed[2], Kristi Verbeke[3]

[1]Wake Forest School of Medicine, [2]Winston-Salem State University, and [3]Wake Forest University

Rationale: The paucity of NIH-designated underrepresented (Black and Latinx) medical professionals and scientists is a major factor contributing to health disparities in the US. The postdoctoral period is when skills in grant-writing[1], publication, and teaching are consolidated, and is a particularly critical time for aspiring URM and women[2] faculty. Therefore, changes in workforce development are needed to increase the number of biomedical researchers and health professionals from vulnerable URM populations.

Methods: The PRIME (Postdoctoral Research, Instruction and Mentoring Experience) program is a partnership between Wake Forest School of Medicine (WFSM) and minority-serving Winston-Salem State University (WSSU), to train biomedical researchers to teach in medical and health professions schools. PRIME integrated traditional mentored postdoctoral research training at WFSM with teaching instruction and mentoring, and teaching experiences at WSSU over a three-year training period. The biomedical research training developed skills in research design and execution, oral communication of results, publication and grant writing, and responsible conduct of research. Scholars also participated in workshops identifying pedagogical principles and educational best practices. They gained teaching experience in undergraduate STEM and graduate health professions courses. Scholars developed mentoring skills by directing undergraduate student research, and they engaged in K-12 outreach activities.

Outcomes: Fifteen scholars were recruited over a five-year period, 80% of whom were from populations under-represented in biomedical sciences. These scholars produced 34 peer-reviewed publications, submitted four grant proposals (two were funded), taught in 13 courses, and supervised

the research of 20 undergraduates.   All scholars successfully transitioned into academic (12), government research (2), or industry science-related (1) positions. Six scholars attained faculty positions at medical, dental or health sciences schools, and four at R1/R2 institutions.

Impacts: The PRIME program 1) doubled the population of URM postdocs at WFSM; 2) developed URM researchers to teach and mentor the next generation of biomedical scientists and health professionals; 3) nurtured career aspirations of URM students at both the undergraduate and K-12 levels; and 4) expanded and strengthened research and teaching collaborations between neighboring academic institutions. PRIME is a potential model for expanding opportunities for URM faculty at institutions seeking to improve opportunities for diversifying their faculty.

[1]PMC3412416; [2]Ysseldyk et al., Front.Psych 2019

*"**Health Equity Research Opportunities (HERO) Workshops:**

Training Graduate Students in Health Disparities Translational and Clinical Research"

Authors: Y. Montez Lane-Brown, Ronny A. Bell, Brenda Latham-Sadler, Bernard Roper and Allyn C. Howlett

Rationale and Need: Underrepresented racial and ethnic minority (URM) scholars conduct the majority of minority-related health research. We **proposed that increasing the knowledge and skills to address health disparities would facilitate student engagement in health disparities research.**

Methods: Using an inter-professional educational approach, the Maya Angelou Center for Health Equity Research and Training Subcommittee developed and delivered the **Health Equity Research Opportunities (HERO) program** to expose MS in Biomedical Sciences graduate students to key concepts in research on health disparities and interventional strategies to promote health equity. The Maya Angelou Center for Health Equity HERO program consisted of three, two-day workshops for graduate students entering the MS in Biomedical Sciences. *Topics in Translational and Educational Research* introduced students to translational research, clinical trials, qualitative research, inter-professional research, statistical approaches and written and oral communication of research. *Detecting and Understanding Health Disparities* concentrated on landmark reports, measurement and social determinants of health disparities, ethics in human subjects research, healthcare reform, cultural competency, and bias in healthcare. *Promoting Health Equity* covered organizational and community interventions, service learning in education, policy interventions, community engagement and community-based participatory research. Workshops incorporated active learning approaches including interactive discussion and activities, and small group development of presentations and written reports. Students were engaged with under-represented minority faculty throughout the HERO workshop series.

Results: Consenting participants completed an IRB-approved online survey to obtain feedback on workshop effectiveness. Knowledge and skills were assessed using *Before* and *After* retrospective questions. Results from N = 26 participants (87% response rate) showed that MS students increased in knowledge in inter-professional research, social determinants of health, and policy interventions to address health disparities. Interest in health disparities research was apparent from a retrospective analysis that 37% of participants chose MS projects related to health disparities.

Conclusions: Participation in health equity training early in the student's educational trajectory can increase knowledge and facilitate interest in addressing health disparities. The HERO workshops showed students how to apply research to promoting health equity, and encouraged students from diverse backgrounds to develop an interest in health disparities research.

Work in Progress

'Students reflection to "review articles" and their presentations as a teaching tool'

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Scientific Review Papers (SRPs) provide an integrated, synthesized overview of the current knowledge that evaluates existing methodological approaches, identifies inconsistency in prior results and potential explanations, and describes research insights, existing gaps, and future research direction. Review papers can serve as an educational tool to increase the students' horizons on each taught subject.

We use SRPs as a supplementary educational tool to enrich the students' perception of concepts they learn in a pharmacology course. Our target group is Master-students in the biomedical sciences program who participated in the Foundation of Clinical Pharmacology Course. A pilot study targeted students who participated in the course during Fall semester 2020 (n=30). Students were divided into groups of four and assigned various review (literature review, systematic review, meta-analysis) papers related to the course topics. The groups were asked to read the articles, discuss them in their groups and present them, emphasizing the connection to the material & topics discussed in lectures. The presentations were through WebEx, and each group had the opportunity to have one or multiple presenters. The other groups reflected through evaluation forms. The group presentations were graded and counted as 30% of their final grade. Peer evaluations of students accounted for 50% of their project grades. They included a quantitative scale for different aspects of the presentation accompanied by an explanation of two strong and two weak points. We evaluated the students' opinions through anonymous questionnaires. The final goals of this educational activity have been itemized as two general goals (1 and 2) and two specific goals (3 and 4) as follow:
1. To familiarize students with different types of review papers
2. To improve scientific presentation skills
3. To increase understanding of the topics discussed in lectures
4. To introduce students with commonly used medications in each discussed field

We have used the first three Kirkpatrick pyramid levels for program evaluation, i.e., satisfaction, learning, and impact. Questionnaires and instructor judgment were used as the evaluation tool. As the initial step, we focused on general goals. At the beginning of the semester, students received education about the characteristics of review articles versus systematic review articles. At each group meeting, different SRPs were assigned to various groups. Students practiced applying their learned knowledge by identifying the type of the paper through specific characteristics that they learned. By the end of the semester, students' ability to identify the style of the articles increased by 70%. Peer and instructor evaluation forms were completed after each presentation to help students improve their presentation skills. Our analysis showed that 72% of students' evaluations aligned with the instructor's. However, student reviewers were less restrained or forgiving than the instructor and mainly focused on their peers' presentation skills. Students were encouraged to use the evaluation

forms as a critique to improve their presentation skills. Students' confidence and presentation skills in all groups were enhanced, reflected in their grades for the group assignments. Each group had in total four presentations, and the presentation skills improved slightly after each presentation. The improvement in the last two presentations was more significant than the first one (P<0.0001).

The efficacy of the program for specific goals targeted the satisfaction of the students. The goal Students satisfaction and suggestions for designing a more efficient activity. A questionnaire was designed to evaluate the students' satisfaction regarding the training and provided materials. 83% of students were in favor of the method. Although most students stated that the activity helped them better understand the subject, they believed that the effect was not significant. The majority of the class agreed that making all students accountable for reading all the papers and doing an activity regarding the paper's content will improve their concentration and deep learning during the peer presentation and help them have a more constructive discussion. It seems that the cognitive load was a burden for students. While the presenting group gained some knowledge about the commonly used medications discussed in the paper, the audience gained minimal knowledge.

Based on students' assessment, we will revise both the content and the method to make all students accountable for the same material and incorporate before and after assessment to evaluate students' improvement more accurately.

Medical Education Research

'Learning to Describe Skin Lesions: Challenges and Suggestions'

Presenter: Zeynep Akkurt, MD

Background: Describing findings of skin disease on a skin examination constitute the first and basic step in diagnosing skin disease. These findings are expressed through standard, internationally approved terminology in dermatology. Learning to utilize terminology to describe skin lesions is challenging for medical students. The existing literature is lacking on teaching methods to improve this specific skill.

Objectives: To characterize challenges MS4 students participating in the elective dermatology rotation in the 2020-21 school year faced while learning how to describe skin lesions. To analyze recommendations made by these students to overcome the challenges. To compile a guideline of suggestions and tips for future students. To suggest improvements to dermatology teachers.

Methods: All students participating in the MS4 clinical dermatology rotation were given a lecture on describing lesions in dermatology on the first day of their rotation. They were offered resources for self-study of the topic and encouraged to practice describing lesions throughout their first week. At the end of the first week students were asked to reflect on their experience learning to practice describing lesions using the following question: "Please reflect on what you learned about describing lesions in dermatology. What were the challenges you faced and did you employ any techniques to learn and practice? What was the most effective way of learning for you? What could have been a better way? What suggestions would you make to future students and to me in learning/teaching this aspect of dermatology?" Answers were uploaded to Canvas. Qualitative thematic analysis of answers was undertaken. The author read and re-read the answers to identify text pertaining to domains of challenges and recommendations. Initial codes were identified under each category and quotes were grouped under the codes. After a final review of the codes, the themes were finalized. Quotes that were congruent with the overarching themes were identified.

Results: Twenty-two students' responses to the reflection question were analyzed. Challenges and suggestions were recorded. Common themes were identified. Common themes that were identified for challenges: Using correct terminology, difficult lesions, real-life cases being different than pictures, being fluent in the language of describing, lack of time with attending, lack of dermatology education. Common themes for recommendations were: Practicing through self-study, practicing in clinic, practice sessions with teacher.

Conclusions: Using the findings of this study we have compiled a guideline for students to use while learning to describe skin lesions. Based on the data we have, we emphasize that this is a skill that takes practice to perfect and will distribute the guideline early in the rotation for future students' reference. Teachers of dermatology should be aware of the challenges and suggestions, strive to do one-on-one teaching with students in clinics that includes giving effective feedback and plan sessions devoted to describing skin lesions.

References:
1- Cardili RN, Roselino AM. Elementary lesions in dermatological semiology: literature review. An Bras Dermatol 2016; 91: 629-33.
2- Blakely K, Bahrani B, Doiron P, Dahlke E. Early introduction of dermatology clinical skills in medical training. J Cut Med Surg 2020; 24: 47-54.

<u>**Curricular Innovation**</u>

'Compare and Contrast: An Online Self-directed Module to Support Clinical Reasoning in the Clinical Years'

Presenter: Rachel M. Wolfe, MD

Co-authors: Donna M. Williams, MD; David E. Manthey, MD; Jennifer M. Jackson, MD

Problem: The Liaison Committee on Medical Education has highlighted the importance of clinical reasoning in medical education, as one of the Core Entrustable Professional Activities focuses on generating and prioritizing a differential diagnosis. Comparing and contrasting diseases can help novice learners develop more robust illness scripts, identify key features of diseases, and better prioritize a differential diagnosis. Currently, there is no such curriculum that targets this element of clinical reasoning at Wake Forest School of Medicine.

Program Objectives:

- Demonstrate the ability to compare and contrast diseases with similar presentations.

- Develop a prioritized differential diagnosis for a given clinical scenario.

- Compare and contrast the patient's clinical presentation to the typical presentation of the disease.

Description of Program: The two-part compare and contrast module was part of an online, one-week course on clinical reasoning for 4th year medical students. Learners were given access to an online folder that included detailed instructions and assigned worksheets. First, learners compared and contrasted three similar disease states from a list of disease triads. Next, learners independently completed a compare and contrast worksheet for a provided clinical case before virtually pairing with another learner to compare worksheets for the same case. Specific discussion questions were provided to scaffold meaningful discussion around clinical reasoning. Each learner was required to submit two of the completed worksheets.

Evaluation/Assessment: 103 learners participated and anonymously evaluated the module via online survey utilizing a 5-point Likert scale. 86% agreed or strongly agreed that the module was an effective

use of their time and 91% of learners agreed or strongly agreed that the module was helpful for learning about and practicing medical decision making skills. 83% of learners agreed or strongly agreed that they would change their practice based on this module. Narrative comments included praise for this new approach to differential diagnosis development and an appreciation for gaining better understanding of pertinent positives and negatives.

Conclusions and Lessons Learned: We developed an online module for learners to practice comparing and contrasting diagnoses with self-directed exercises and think-pair-share activities with peers. The module was easy to implement and was well received by learners. With future iterations of the module, we hope to assess a higher level of evaluation and more directly measure efficacy of our stated objectives. This asynchronous, virtual module easily integrates into the clinical curriculum.

Medical Education Research

'Impact of Shortened Clinical Clerkships on Student Performance and Clerkship Assessment'

Authors: Lindsay Strowd MD, Nicholas Hartman MD MPH, Kim Askew MD, Andrea Vallevand PhD, Kim McDonough MSN, Jon Goforth MBA, David Manthey MD

Background: Schools may have to adjust clinical clerkship lengths due to overarching curricular change or in response to external factors such as the COVID-19 pandemic. Previous literature examining the effect of shortened clerkships on student performance is mixed. Wake Forest School of Medicine shortened third year clerkships by an average of 25% during 2018-2019 academic year. This change uniquely positioned us to examine the impact of this change on student experience at our institution.

Objectives: Our study aimed to discover differences in student performance on standardized national exams, performance on objective structured clinical exams (OSCEs), and student clerkship evaluations between the 2017-2018 (traditional) and 2018-2019 (shortened) academic years.

Methods: Two cohorts of students were included in data analysis. Cohort demographics, Medical College Admissions Test (MCAT), United States Medical Licensing Exam (USMLE) Step 1, National Board of Medical Examiners (NBME) subject exam, and USMLE Step 2 CK scores were analyzed. Institutional OSCE performance and end of clerkship evaluations were included in analysis. Data was analyzed using descriptive statistics, analysis of variance (ANOVA), and Chi square analysis.

Results: One hundred four students were included in each of the two cohorts. There were no differences with respect to MCAT, USMLE Step 1, NBME, or Step 2 CK scores. Six OSCE cases were analyzed for student performance differences, with one OSCE case showing better average student scoring in each of the curricular cohorts. 77% of the traditional curriculum cohort and 78% of the shortened curriculum cohort rated clerkships as "good" or "excellent". Using Chi square analysis, the pediatric clerkship was rated higher by students in the traditional curriculum, and the psychiatry clerkship was rated higher in the shortened curriculum.

Conclusions: Decreasing the length of each clerkship by up to 25% did not have significant effect on NBME subject exam or Step 2 CK exam performance. The majority of OSCE exams showed no scoring

differences, and student satisfaction remained high across all clerkships. We feel confident in advising students that participating in a shortened curriculum should not have a detrimental effect on clerkship satisfaction and Step 2 CK.

Medical Education Research

'Qualitative Analysis of Collegiate Athlete Performance in Medical School'

Authors: Lindsay Strowd MD, Katherine Kelly, Timothy Peters MD, Jennifer Jackson MD

Background: Few studies have formally assessed qualitative factors affecting medical school performance. We previously published data showing students with prior collegiate athlete experience significantly outperformed their peers in USMLE Step exams, third year clerkships, and Honors designation.

Objective: Our objective was to utilize qualitative research methods to explain performance differences between prior collegiate athletes and their medical school peers.

Methods/Design: We conducted semi-structured interviews with current medical students who had collegiate sports experience, medical school faculty who have served as team doctors or extensive experience with collegiate athletes, and collegiate coaching staff. Interview transcripts were coded and analyzed using grounded theory and triangulation.

Results: A total of twenty-three subjects participated in the study (15 students, 5 faculty from family medicine, physiatry, and orthopedics, and 3 Wake Forest University coaches). Non-cognitive factors (NCFs) were identified across all three groups as being critical to medical student success: goal setting and pursuit; time management; teamwork skills; interpersonal or communication skills; resiliency when faced with adversity; and commitment to personal wellbeing. Participants developed these skill sets while engaged in their college athletics and then applied them to medical school with positive results.

Conclusions: Based on this qualitative research, we felt the Kendellen and Cammire framework of life skills transfer best explained how the students developed a number of intrapersonal and interpersonal skills through college sport participation, recognized opportunities to apply these skills in the medical school context, appraised their application of these skills in medical school as beneficial to their performance in that setting, and adapted their future behaviors accordingly toward successful outcomes. While some of the NCFs described in this study may in part represent innate traits among

student athletes that predated their matriculation to college, most of the NCFs discussed represent knowledge and skills that can be learned and applied by any medical student. Medical schools can screen for pre-matriculation activities that encourage development of these NCFs, and student advising can use these strategies to support students, via peer mentoring or other methods.

Curricular Innovation

'Implementation of Dermatology and Virology Team-Based Learning Event Emphasizing Skin of Color Diagnosis'

Presenter: Candace Haghighi, Medical Student, Class of 2024

Co-authors: Lindsay Strowd, MD; E. Shen, PhD; Timothy Peters, MD

Problem: Multiple curricular threads exist within the Wake Ready curriculum, including dermatology and the new justice thread. Course and thread directors are constantly looking for new and innovative ways to incorporate thread content that is both meaningful and engaging for students.

Program Objectives: The purpose of this event was to: (1) improve student recognition of cutaneous manifestations of viral illnesses, (2) identify differences in cutaneous skin disease depending on skin color, (3) apply knowledge of basic science virology to clinical vignettes, (4) engage in productive discussion with peers on interpreting clinical virology disease presentations. This event also utilized TBL format to facilitate small group peer discussion and to apply basic virology concepts to clinical scenarios.

Description of Program: This single Team-based learning (TBL) 2.5 hour event was co-hosted by the Dermatology thread director and Virology course director. Students were organized into virtual small groups to work through four different themed question sets (oral lesions, rashes in immunocompromised, rashes in healthy adults, pediatric rashes) and arrive at group answers for each board-style question. Small groups then convened into a large group to provide and debate their answer choices. The course directors provided diagnostic and therapeutic pearls with a focus on skin of color patients.

Evaluation/Assessment: Following the TBL event, students were asked to fill out a survey regarding their satisfaction with the event and feedback on how to improve the learning event. More than 90% of students rated the overall experience as good or excellent, felt it prepared them for wards, for Step 1, and improved their understanding of dermatology in skin of color patients. 96% of students would like to keep the TBL event for future virology courses. A common theme from student feedback included having more time to complete the activity, as students felt rushed.

Conclusions and Lessons Learned: TBL can serve as an effective teaching method for incorporating and blending core course material with curricular thread content. Importantly, all-class small group discussion is effectively facilitated by a small number of faculty experts. Instructors should allot for enough time to deliver the content and allow for student comprehension and small group discussion.

Curricular Innovation

'Developing Personalized Diversity Statements to Increase Diversity Knowledge and Competency'

Presenter: Manuel U. Ramirez, PhD

Authors: Kristi Verbeke, PhD; David McIntosh, PhD; Allyn Howlett, PhD

Problem: An understanding of identities (the traits of an individual, such as ethnicity, gender, et cetera) is important for successfully interacting/collaborating with colleagues, students, and trainees in medical education settings. The importance of understanding and experience with diversity is demonstrated by the requirement for personal diversity statements when applying for funding or employment. A lack of understanding 'diversity', and what constitutes a 'diversity statement', can lead to missed opportunities and poor professional experiences.

Program Objective: Foster an understanding of diversity; generate a competitive diversity statement.

Description of Program: A training program to foster understanding of diversity, and generate a personalized diversity statement, was conducted in two 2-hour sessions spaced one week apart. The first 'information' session is initiated with introductions and ice breakers, allowing attendees to gain comfort. Generating an atmosphere where a lack of knowledge is not stigmatized, and ground rules are established[1], allows for productive discussion.

The topic of 'identities' is discussed, followed by intersectionality. Equipped with this knowledge, attendees are asked to describe diversity. Information on diversity follows, with important emphasis on the inclusivity of diversity. The next step is honest, personal assessment of history with diversity and diverse populations. The session culminates with a discussion of how to engage in diversity practices. Finally, the purpose and format of a personal diversity statement is described.

Attendees return for the second 'assessment' session having prepared a diversity statement. Statements are randomly distributed within groups, with each attendee receiving other attendees' diversity statements. Feedback is given on each, followed by a discussion on commonalities, highlights, and common issues. Individualized instructor feedback is valuable.

Evaluation/Assessment: The level of success for this training program was evaluated by the quality of diversity statements generated by the attendees, as assessed by program coordinators, and a feedback form that allows the attendees to evaluate whether they gained an improved understanding of diversity; felt competent in engaging in diversity discourse; and could identify the value of the program to their professional or personal social competency.

Conclusions and Lessons Learned: Evaluation suggested attendees made great gains in both understanding and comfort engaging with diversity. The program benefits from attendees with diverse identities for the purposes of demonstration and discussion. This training program equipped participants with a well-prepared Diversity Statement, a vital component of a competitive job application in medical and academic fields. More rigorous evaluation would allow for further improvements in the program.

Works Cited:
1 Kite, Mary K.; Case, Kim A.; Williams, Wendy R. *Navigating Difficult Moments in Teaching Diversity and Social Justice*. American Psychological Association; 1st edition, November 10, 2020.

Medical Education Research

'Medical Students' Media Multitasking During Lectures: Cognitive and Course-Related Correlates'

Presenter: Paula Patel, MS2

Authors: Jonathan Mayl, Ximena Quoriz, Sarah Vaala, Matthew Ritter, Karl Richardson, MD

Background: Technology and media use in medical school are both expected and encouraged. With constant access to media, however, students' learning may be impeded by media multitasking (MM; use of media devices during class for non-class purposes). Negative implications of MM on undergraduate students' learning has been established. This behavior has not been examined in medical education.

Aim: This study applies a behavioral prediction theory, the Theory of Planned Behavior (TPB), to assess relationships between students' perceptions of MM and course factors and their MM behavior during lectures. Findings can inform institutional efforts to discourage students' MM during lectures.

Methods: An online survey of MS1s and MS2s at our institution (N = 121) measured reported MM behaviors and multiple questions regarding a random recent course block. Also measured were TPB constructs, including attitude towards limiting MM during lectures, perceived norms of other students' MM behavior, and self-efficacy in limiting MM.

Results: Linear regression analyses assessed cognitive constructs of the TPB and course factors as predictors of two measures of MM: amount of time spent MM in lecture; estimated frequency of MM per lecture. Results indicated perceptions of other students' behavior was the strongest predictor of time spent multitasking ($\beta = -0.39$ $p < .01$), and MM frequency ($\beta = -0.39$, $p < .01$). Rates did not differ based on in-person versus remote attendance. Students reported less time multitasking when they were more engaged in lecture material ($\beta = -0.24$, $p = .05$), and that they would be more likely to cut back if their friend disapproved of MM ($\beta = 0.43$, $p < .01$). No other course factors predicted MM behavior. Additional analyses examine beliefs about multitasking that are strongly linked to intentions to reduce MM in subsequent blocks.

Conclusions: Strategic messaging to reduce students' MM in medical lectures could seek to emphasize that the behavior is not as common as students might think (i.e., change descriptive norms). Additionally, instructors might seek novel ways to engage students in lecture. Given the value of technology in medical education but known potential detriment of MM, additional research should focus on the impact of MM in this population.

Work in Progress

'Health Equity Certificate Program: A Pilot Curriculum'

Presenter: Brenda A. Latham-Sadler, MD

Co-authors: Kimberly Montez, MD, MPH; Sarah Langdon, MPH, MCHES; Kristen G. Hairston, MD; Allison M. Caban-Holt, PhD; Allison Mathews, PhD; Nancy Denizard-Thompson, MD

Background:

- Medical schools across the US are increasingly interested in curricula incorporating the social determinants of health (SDH), structural racism and implicit bias to promote health equity

- Students across Wake Forest School of Medicine have requested additional training around the SDH and community engagement to better prepare them for practice

- While several curricula are described in the literature, few incorporate a multidisciplinary team of faculty and learners across departments and schools, spanning all training levels

Objectives:

- To improve knowledge regarding health disparities, health policy, SDH, and enhancement of skills for care of historically marginalized populations.

- To engage participants in the planning and development of effective solutions via research and advocacy in conjunction with community partners via Capstone Projects.

Methods:

- Grant funding was obtained to develop a longitudinal Health Equity Certificate Program (HEC) with 11 educational modules; WFBH Faculty were recruited to co-lead the HEC

- The HECP was offered for the first year in 2020-2021 to medical students, physician assistant students, biomedical and nursing graduate students, and medical residents and fellows who were part of the entire WFBH system

- For Capstone Projects, learners identified a community organization engaged in the learner's area of focus and gauge organization's potential interest in partnering. Capstone projects must address

a need defined by the community partner organization. Learners then prepared a Capstone Project Proposal and submitted for approval to HEC leadership

Evaluation Plan:

- Ten participants were recruited for the first year of the curriculum (2020-2021)

- Majority were female (90%) and medical students (70%)

- To date, three educational modules have been completed

- Eight community partners are collaborating with participants on Capstone Projects.

- The following measures will be tracked: attendance; quantitative and qualitative satisfaction of participants and community partners; number of partners engaged; change in knowledge, attitudes, skill enhancement, and practices; and deliverables, such as reflections, projects, and scholarly products

- RedCap online database system is utilized to facilitate evaluation components, including: Learner application process; Module evaluations; Capstone project proposal and implementation process, and overall program evaluation

- Feedback will be utilized to make iterative improvements, as appropriate, to program content, instruction methods, and partnership structures

Conclusions:

- We expect that the HECP will provide educational and multidisciplinary professional opportunities along with strategies for mitigating structural racism and discrimination

- We look forward to promoting community-engaged approaches in conjunction with community partners to address health equities

- We anticipate this pilot will engender an institutional culture change in dismantling racism in medicine in order to promote health equity

References:

1. Castillo EG, Isom J, DeBonis KL et al. *Acad Med.* 2020;95(12):1817-22.
2. DallaPiazza M, Ayyala MS, Soto-Green ML. *Med Teach*. 2020;42(7):806-812.
3. Sharma M, Pinto AD, Kumagai A. *Acad Med*. 2018;93(1):25-30.
4. Coria A, McKelvey TG, Charlton P, Woodworth M, Lahey T. *Acad Med.* 2013;88(10):1442-9.
5. Perdomo J, Tolliver D, Hsu H, Ye Y et al. MedEdPortal. 2019;15:10858

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<u>**Medical Education Research**</u>

'Compare UGME preclinical course evaluation during COVID-19'

Authors: E Shen, PhD; Hong Gao, PhD; Patrick Reynolds, MD; Randy Clinch, DO, MS

Background: The transition of pre-clinical teaching from face-to-face to mostly virtual classrooms during COVID-19 raised justifiable concern over the quality of the pre-clinical teaching and learning. In the Wake Forest School of Medicine MD program, a mixture of recorded lectures, live-streaming from classrooms, virtual classroom (e.g., WebEx) were used to deliver pre-clinical content to MD students.

Objectives: This purpose of this study is to compare the data from course/block evaluations between pre-COVID-19 and during COVID-19 periods when delivery of course content had to be substantially changed. Specifically we looked at the data related to

- overall course satisfaction
- appropriateness of course instructional method

Methods: Course evaluation data were obtained for the cohort that was taught during the COVID-19 period and the cohort taught just before COVID-19. Only the courses in which the delivery method were substantially impacted were included in this analysis. A number of courses using small groups were still delivered face-to-face during COVID-19 (e.g., clinical skills) and they were not included in the analysis. The learning contents for all courses/blocks and the course directors and lecturers stayed the same between COVID-19 and pre-COVID-19 periods.

Results: The following table shows the block/course evaluation results by course/block. Across the block/courses of interest, there was little change to student overall satisfaction and student perceived appropriateness of course instructional method. It should be noted some of the blocks/courses that were rated lower by the respondents had improved results during COVID-19 periods, especially the pulmonary block.

Block	Delivery Method	Overall Course Satisfaction (Excellent + Good)		Appropriateness of Course Instructional Method (Strongly Agree + Agree)	
		COVID	Pre-COVID	COVID	Pre-COVID
Digestive/Nutrition	Primarily Recorded lectures	100%	100%	100%	100%
Hematology	mix of WebEx and Echo live streaming/recording	97%	97%	97%	87%
Pulmonary	Primarily WebEx	68%	58%	73%	62%
Cardiovascular	Primarily Echo live streaming/recording	96%	98%	96%	98%
Renal	mix of WebEx and Echo live streaming/recording	89%	94%	85%	92%
Endocrinology/ Reproductive Health	mix of WebEx and Echo live streaming/recording	100%	97%	92%	97%
Rheumatology	Primarily WebEx	96%	100%	93%	96%
	Average	**92%**	**92%**	**91%**	**90%**

Conclusions: Based on course evaluation data, student overall satisfaction and perceived appropriateness of instructional method were not negatively impacted by the changes to the delivery methods caused by COVID-19. One of the possible reasons is that course directors put many efforts into preserving the interactivity of sessions during virtual delivery. For example, the majority of the small group sessions were kept and moved into virtual format. Weekly Q/A virtual/live sessions were added to a number of course blocks. Creative ways were used to conduct simulation and patient contact sessions virtually. These may all have contributed to the stable student course satisfaction.