Association of American Medical Colleges
Northeast Group on Educational Affairs

2023 Annual Conference

Fostering Personal and Professional Vitality in Academic Medicine

ABSTRACT COMPENDIUM

April 13-15, 2023

Burlington, Vermont

Hosted by
The Robert Larner, M.D. College of Medicine at The University of Vermont

Table of Contents

Workshop Abstracts

Submitter First Name	John
Submitter Last Name	Arnott
Submission Title	Standing Together with Standard Operating Procedures for Curriculum Delivery
Rationale	Consistent and effective curriculum implementation has been a constant challenge in medical education. Inconsistent understanding and use of pedagogical methods create shared frustration for all stakeholders. Even well-defined pedagogies are often inconsistently or inappropriately used due to misunderstanding and inadequate faculty development. We addressed this issue by creating institutional standard operating procedures (SOPs) for curriculum delivery. SOPs are sets of readily understandable guidelines that ensure consistency in understanding, delivery, and performance from all stakeholders. SOPs have many benefits, including creating mutual understanding, setting shared expectations, enhancing reliability, promoting equity, and reducing student/faculty anxiety. Additionally, students created complimentary SOPs for learners. In this session, we will explore creating SOPs for curriculum delivery. Attendees will be introduced to SOPs for curriculum delivery, an approach to create them, and they will engage in creating both student and faculty versions of SOPs. We will also provide a forum for peer discussion regarding creating and implementing SOPs, discuss the benefits and challenges, and how this approach can be used to engage students, educators, and providers across healthcare institutions.
Learning Objectives	Describe the needs and use of standardized operating procedures (SOPs). Discuss examples of SOPs and the approaches used by learners and faculty to create them Discuss benefits and challenges of using SOPs. Compare participants' discussion points to develop consensus around best practices for developing and implementing SOPs.
Session Methods and Format	The session is structured as a brief demonstration followed by a small group, then a large group active discussion. 1. 10 min- The authors will describe SOPs including the impetus for their development and the steps involved in creating an SOP which will serve as a framework for subsequent group work.

	2. 30 min- Small group discussion: Participants will be divided into small groups. Each group will be tasked with developing an SOP using the framework provided. Session faculty will circulate among the groups offering suggestion as necessary. 3. 15 min- Large group discussion: A representative from each group will present their SOP and the participants offer a critique. 4. 15 min- The participants and faculty will discuss advantages and challenges related to using SOPs and explore implementation strategies; the comments will be captured during the discussion. 5. 5 min- Closing: The session will be summarized with respect to the objectives. 6. Post session: The names and email addresses of the participants will be collected and the slide set including the SOPs created by each group and summary of the discussion will be made available to the participants in a cloud-based platform after the session.
Experience	All faculty authors hold curriculum or administrative leadership roles (Chair, Vice Chair, Course Director) and are experienced in making presentations and leading workshops. They have participated in many national conferences including NEGEA and IAMSE. Raymond Stemrich is a fourth-year medical student at GCSOM. He led the student team in the development of the SOPs at the school.
References	N/A
Submitter First Name	Karen
Submitter Last Name	Barr
Submission Title	Mentoring "hot seat" simulation: How to develop an engaging faculty development session to enhance mentoring skills
Rationale	Effective mentoring has been described as critical to the success of both trainees and academic physicians. The positive impact of mentorship on a wide range of outcomes is well described. Yet, the majority of academic physicians, particularly clinician educators, women and minority physicians, report being under mentored. One of the reasons commonly cited for the low percentage of physicians who feel they have effective mentors is the lack of enough faculty with the skills to mentor, and lack of training in mentorship. There is limited literature regarding how mentors might acquire or improve mentoring skills, particularly in the limited time frame available for most faculty development sessions. Descriptions of mentor training tend to be sparse descriptions of didactics sessions without enough details provided to replicate the mentor training. New skills are learned by practice and incorporating feedback to improve. Simulation is ideal to create an opportunity to learn and practice new skills in a low stakes, supportive environment and receive real time feedback and thus is the format for this workshop.
Learning Objectives	1. Identify the steps necessary to design a mentoring simulation 2.Practice Applying a mentoring framework during a mentoring "hot seat" simulation 3.Demonstrate effective mentoring skills in a simulation 4. Detect effective facilitation skills that drive a mentoring simulation session

	5. Deconstruct a simulation script and analyze how this could apply to the participants local context
Session Methods and Format	20 min: Overview of hot seat simulation format, mentoring framework, and mentoring simulation development and outcomes 35 min: experiential participation in simulated mentoring scenario, in which participants rotate through the mentoring "hot seat" and practice steps of the mentoring framework, while receiving real time feedback from other workshop participants, who are observing the scenario unfold in a "fishbowl" style. 7-9 participants will be able to rotate into the hotseat, but all workshop participants will have an active role in the simulation by giving feedback and suggestions. During the simulation, we will "time out" to highlight facilitator techniques for those wanting to replicate the workshop 20 min: Deconstruction of the simulation script and other workshop material, and analysis of session, with group discussion regarding applying to local context
Experience	Karen Barr, MD: experienced mentor and educator, including teaching the fishbowl and "hot seat" simulation method. Angela Garcia MD: Multiple presentations at national meetings, she will be simulation "mentee
References	1. Sambunjak, D., S.E. Straus, and A. Marusić, Mentoring in academic medicine: a systematic review. Jama, 2006. 296(9): p. 1103-15.2. Feldman, M.D., et al., Does mentoring matter: results from a survey of faculty mentees at a large health sciences university. Med Educ Online, 2010. 15.3. Lewis, V., et al., A Randomized Controlled Trial of Mentoring Interventions for Underrepresented Minorities. Acad Med, 2016. 91(7): p. 994-1001.4. Khan, N.R., et al., Residents as Mentors: The Development of Resident Mentorship Milestones. J Grad Med Educ, 2017. 9(4): p. 551-554.5. Wilkes, M. and M.D. Feldman, Mentoring clinical trainees: a need for high touch. Lancet, 2017. 389(10065): p. 135-137.6. Choi, A.M.K., et al., Developing a Culture of Mentorship to Strengthen Academic Medical Centers. Acad Med, 2019. 94(5): p. 630-633.7. Feldman, M.D., et al., A mentor development program for clinical translational science faculty leads to sustained, improved confidence in mentoring skills. Clin Transl Sci, 2012. 5(4): p. 362-7.8. Neale, J., What is the evidence for the use of simulation training to teach communication skills in psychiatry? Evid Based Ment Health, 2019. 22(1): p. 23-25.9. Barr, K.P., M.R. Reyes, and S. Kim, "Hot Seat" Simulation to Teach Conflict Management Skills to Residents. J Grad Med Educ, 2020. 12(4): p. 485-488.10. Nakagawa, S., et al., Communication Skills Training for General Surgery Residents. J Surg Educ, 2019.
Submitter First Name	Raquel
Submitter Last Name	Belforti
Submission Title	Creating a Roadmap Towards Professional Vitality
Rationale	The 2023 NEGEA annual meeting theme is on Professional Vitality. Vitality in the academic medical literature encompasses one's professional engagement, productivity, and career satisfaction1. Individuals with professional vitality are curious, intellectually engaged, and continue to grow personally and professionally throughout their academic careers. They energetically pursue fresh interests and acquire new skills and knowledge2. Enhancing professional vitality has widespread goals beyond one's own professional satisfaction, and also improves participation in governance and intellectual life at academic institutions.2 Individuals and institutional actions supporting vitality may be factors that can prevent burnout.2 This workshop will be an interactive professional

	development experience for participants to better understand what constitutes vitality in one's career and strategic steps to enhance it. Through this workshop, participants will be guided through exercises and self-reflections to identify individual contexts of professional vitality (values, self-efficacy, motivation, personal goal, self-management, and life-long learning).2 Through this exploration, small group discussions, and peer mentorship, each participant will develop an individualized roadmap for enhancing their professional vitality. This workshop will not only positively impact those in attendance, but will also provide them with the knowledge and skills to serve as mentors to others at their own institutions in need of career revitalization.
Learning Objectives	1. Discuss the importance of professional vitality on one's career and professional growth 2. Identify personal values and drivers that relate to one's professional vitality 3. Develop an individualized plan to enhance one's professional vitality
Session Methods and Format	5 minutes: Introduction to Professional Vitality- brief overview on concepts and evidence based literature on Professional Vitality 25 minutes: Values Exercise- interactive, facilitated exercise in which each participant will identify their top 5 core values. Pair/Share will allow for participants to explore their values and to reflect on their satisfaction with their current values. 15 minutes: Guided Reflection using a vitality wheel to determine one's current faculty vitality in the areas of Teaching, Mentorship, and Leadership Skills, Academic Promotion, Scholarly Activity, Work Life Integration, Career, and Self Promotion. Each participant will identify an area they wish to focus their efforts to impact over the next few months. 20 minutes: Small group break-out sessions. Based on the results of the guided reflection, participants will break out into one of 3 groups to be peer mentored on strategies they can take to impact the vitality of the area they identified to focus on. Each small group will be facilitated by faculty with expertise in each domain: skills, scholarship, and career development. 10 minutes: Large group debriefing on the workshop and any questions will be answered. Facilitation: Participants will be provided access to workshop materials in print and electronic formats to be able to bring back to their own institutions.
Experience	Dr. Raquel Belforti co-directs an institutional-wide peer mentorship program, Mentors Matters, focused at enhancing participants mentorship skills and professional vitality, which has also been presented regionally and nationally. Dr. Reham Shaaban has been recognized as an Exceptional Educator by New England SGIM and has been recognized for her focus on mentorship and coaching. Dr. Sharon Wretzel has created and led multiple workshops aimed at fostering growth, leadership, and mentorship, regionally and nationally.
References	1. Dankoski, ME, Palmer MM, Laird TFN. An Expanded Model of Faculty Vitality in Academic Medicine. Adv in Health Sci Educ. 2012;17:633-649.2. Shah DT, William VN, Throndyke LE, et al. Restoring Faculty Vitality in Academic Medicine When Burnout Threatens. Acad Med. 2018;93(7):979-984.
Submitter First Name	Hetty

Submitter Last Name	Cunningham
Submission Title	Solutions and Challenges to Creating and Strengthening Health Equity Curricula
Rationale	Innovative faculty development and curricular content models are urgently needed to teach medical students to employ tools that will dismantle racist structures in healthcare and address healthcare disparities.(1) This workshop will highlight how multiple institutions are meeting this challenge and will engage participants in discussion about next steps they can take to fortify health equity curricular themes.
Learning Objectives	Workshop Goal: • Increase faculty knowledge and skills needed to create and strengthen health equity-related curricular themes and content. Objectives: • Experience inclusive community-building strategies • Discuss a variety of ways peer institutions are creating and fortifying curricular threads in health equity • Explore challenges to implementation of health equity curricular content
Session Methods and Format	5 minutes. Welcome, Introduction and Norms · Welcome/What to expect · Participants will provide contact information, and list questions and challenges on index cards. Presenters will use this information to guide the session and enable post-session follow-up. 10 minutes. Table Community Building: Model for Inclusive Discussions 4 participants use and experience the Circle of Voices Conversation Tool(2) • Share something no one would know about your journey toward health-equity work. • What has been your biggest challenge working toward health equity at your institution? • What has been the biggest health equity triumph at your institution? 20 minutes. Panel presentations highlighting authors' experiences with Health Equity Educational Initiatives (4 minutes each) 1. Curricular mapping: An evaluation of anti-racist, health equity content in a recently revised, integrated UME curriculum. Dr Mullins 2. Strategies by which educators address root causes of health and healthcare inequities while avoiding causing harm to learners from historically marginalized backgrounds. Dr. Williams 3. Modifying patient scenarios to match a local Georgia medical school patient population within a case-based curriculum. Dr. Baldwin 4. Incorporating health equity teaching in GME: journal articles, written reflections, bedside teaching, case-based learning presentations (i.e., "Morning Report") and root cause analysis (using fish-bone diagrams). Dr. Pai 5. Social Determinants Patient Screening to meet Hospital Standards: strategies to meet

	current CMMS/JACHO standards around screening and addressing Social Determinants of Health. Dr. Dougherty 5 minutes. Q/A to the panel 20 minutes. Facilitated Table conversations. Participants select a table/topic. Each table will correspond to a challenge or solution presented by panelists, who will facilitate. 10 minutes. Whole group: debrief 5 minutes. Exit ticket: Write one action item that you want to explore. Share at table.
Experience	JM.Alves-Bradford has led clinical initiatives, equity-based curricula and faculty development for 20 years. A.Baldwin has developed pre-clerkship sociobehavioral curricula for 15 years, including Medical Improv-based communication skills. H.Cunningham has developed UME to CME anti-racist curricula for 20 years. R.Dougherty, Health Equity Thread Lead, has developed UME and CME curricula for 6 years. D.Mullins developed UME curricula for 7 years and co-led implementation of integrated Race and Health Equity curricula. S.Pai is UME Health Equity Thread co-director (one year) and founder/director of the pediatric Resident Education in Advocacy and Community Health for the past 10 years. A.Williams develops and leads curricula in behavioral/social sciences, public health, social, structural, and political determinants of health, and medical humanities.
References	1. Ross, P. T., Lypson, M. L., Byington, C. L., Sánchez, J. P., Wong, B. M., & Kumagai, A. K. (2020). Learning From the Past and Working in the Present to Create an Antiracist Future for Academic Medicine. Academic Medicine, 95(12), 1781-1786.2. Brookfield, S. D., & Preskill, S. (2012). Discussion as a way of teaching: Tools and techniques for democratic classrooms. John Wiley & Sons.
Submitter First Name	Katherine
Submitter Last Name	Forkner
Submission Title	Breaking the Code of Curricular Keywords: Using Technology to Improve Accessibility in Adopting the AAMC Keywords
Rationale	Medical schools are expected to have a system in place to readily identify where topics are taught and assessed across the curriculum, which is a critical need for effective curricular program evaluation. The AAMC provides a recommended list of 98 keywords for medical schools to tag within their curriculum inventory data management systems. However, because the list is designed to provide high-level and broad curricular content in an effort to keep the list concise and manageable, many faculty find the terms too broad to meet the specific needs of their course. Further industry demands, such as the

	LCME's list of "hot topics" asked of schools in the Annual Part II Questionnaire, often falls outside of the scope of the AAMC recommended list. However, this list can quickly become too extensive to be kept manageable, requiring more support than schools can allocate to support curriculum mapping. The Mayo Clinic Alix School of Medicine (MCASOM) has found success in adopting the AAMC Keyword List while providing institution-specific business rules and adaptations to further meet individual faculty needs. A color-coded system with an expansive list of synonyms and easily confused terms allows for flexibility of nuance and combined with faculty development to train in the use of the tool, has improved its utility to support curricular program evaluation.
Learning Objectives	By the end of the workshop, participants will be able to: • Explain their institution's current processes related to curricular keyword mapping. • Recognize alternative methods to improve the accessibility of curricular keywords for their institution's faculty.
Session Methods and Format	[10 minutes] Review of industry demands and resources: • Curriculum data required to populate LCME DCI tables • Annual submission of curriculum survey to the AAMC • AAMC CI Keyword List [35 minutes] Small Group Breakout Participants will be divided into small groups and will share responses to prompts: o What keyword tagging strategies has your institution found successful? o How do you use keywords in your program evaluation processes, at the individual course/clerkship level, phase level, or program as a whole? (LCME Element 8.3) o What technology does your institution use to support the keyword tagging of your curriculum inventory? [15 minutes] Keyword mapping strategy employed by MCASOM • Aligning current state of tags to AAMC recommendations • Identifying additional tagging needs (e.g., curricular threads; LCME "hot topics") • Further adapting AAMC recommendations through institutional business rules and expansion of synonyms and "do not include" terms using color-coding system • Pilot testing and integration with technology • Lessons learned and tips for success [10 minutes] Large Group Share • Participants will share what "pearls" they learned during the workshop • Speakers will take notes of "pearls" and will ask participants to share their emails so that all "pearls" can be shared back. [5 minutes] Q&A
Experience	Colleen Hayden, EdD, is Director of Quality, Compliance, and Accreditation at Icahn Mount Sinai, with over 15 years of experience in medical education administration. Kate Forkner, MA, serves on the Curriculum, Assessment, and Program Evaluation team at the Mayo Clinic Alix School of Medicine, with over 10 years of experience in curriculum management across a continuum of learners.
References	Association of American Medical Colleges (AAMC) Curriculum Inventory (CI) (2020). AAMC Curriculum Inventory (CI) Keywords. Washington, D.C.

	https://www.aamc.org/what-we-do/mission-areas/medical-education/curriculum-inventory/use-your-ci
Submitter First Name	William
Submitter Last Name	Fuller
Submission Title	Improving Validity of Narrative Evaluations: A Practical Approach Using Two Validity Frameworks
Rationale	Ideally, narrative evaluations provide medical students with feedback essential to their ability to reflect and adapt. But narrative evaluations have been criticized as being particularly prone to bias and contributing to inequity through an "amplification cascade" which results in poorer outcomes for students belonging to racialized groups underrepresented in medicine. (1) In this workshop, we introduce two important frameworks for describing the validity of an assessment and apply them to analyzing narrative evaluations and the inferences made from these evaluations. Messick's framework establishes categories for validity evidence, allowing educators to consider each potential source to improve the validity of their assessments. (2) Kane's argument-based validity framework examines the inferences made at each step in the process of assessment, moving from observed student performance to generalization and extrapolation. This approach allows users to consider the adequacy of the evidence used to make each subsequent step. (3) These complementary frameworks have previously been used to structure a comprehensive evaluation of narrative validity in the graduate medical education setting. (4)
Learning Objectives	This workshop presents a practical and generalizable approach to evaluating the process of narrative evaluation based on established validity frameworks. By participating in this session, learners will: • Identify strengths and weaknesses in existing assessments using narrative evaluations • Describe the Kane and Messick validity frameworks • Apply the Kane and Messick frameworks to narrative evaluations • Generate strategies for improving the validity of narrative evaluations
Session Methods and Format	Session Methods/Format: After a brief didactic review of current issues in narrative assessment, the two frameworks will be presented. The majority of the session will be small group discussion assessing the utility of these frameworks to an example scenario, and subsequently applying the evaluation frameworks to attendee's home institutions. Agenda: - Review general practices in narrative assessment and evidence of shortcomings (:00-:10) - Introduce Kane and Messick frameworks (:10-:20) - Small group discussions on the aspects of the frameworks and what gaps they reveal in an example scenario (:20-:30) - Large group debrief (:30-:45) - Small group brainstorms on applying these frameworks to their own institutions (:45-:55) - Large group debrief (:55-1:10)

Experience	William Fuller has spearheaded a redesign of the evaluation system for the Internal Medicine clerkship at his institution and has given workshops nationally regarding bias in narrative assessment. Jonathan Amiel is past chair of the NEGEA, led the AAMC's Core EPA Pilot, and is an assistant editor of Academic Medicine and member of the International Competency Based Medical Educators collaborative and the Society of Directors of Research in Medical Education. Lauren J. Germain is director of Evaluation, Assessment and Research at SUNY Upstate Medical University and co-director of the Harvard Macy Institute's course, A Systems Approach to Assessment in Health Professions Education. Judith Brenner is an associate dean overseeing assessment and evaluation in her medical education program and is a participant in a multi-site community of practice group focused on sources of bias in assessment.
References	1. Teherani A, Hauer KE, Fernandez A, King TE Jr, Lucey C. How Small Differences in Assessed Clinical Performance Amplify to Large Differences in Grades and Awards: A Cascade With Serious Consequences for Students Underrepresented in Medicine. Acad Med. 2018 Sep;93(9):1286-1292. doi: 10.1097/ACM.0000000000002323. PMID: 29923892.2. Messick S. Validity. In: Linn RL, ed. Educational Measurement. New York, NY: Macmillan Publishing; 1989:13–1033. Kane, M.T. (2013), Validating the Interpretations and Uses of Test Scores. Journal of Educational Measurement, 50: 1-73. https://doi.org/10.1111/jedm.120004. Kinnear B, Kelleher M, May B, Sall D, Schauer DP, Schumacher DJ, Warm EJ. Constructing a Validity Map for a Workplace-Based Assessment System: Cross-Walking Messick and Kane. Acad Med. 2021 Jul 1;96(7S):S64-S69. doi: 10.1097/ACM.0000000000004112. PMID: 34183604.
Submitter First Name	Katherine
Submitter Last Name	Gielissen
Submission Title	Flourishing-Focused Advising: Harnessing Milestones 2.0 Well-being Assessments to Cultivate Trainee Thriving
Rationale	In 2018, the Accreditation Council for Graduate Medical Education (ACGME) introduced "harmonized" Milestones to be used across specialties, including PROF-3 "Self-awareness and Help-seeking" (1). Though not yet present in all graduate milestones, a version of the PROF-3 subcomptetency is present in the revised Milestones (2.0) of over 30 specialties. Given the well-established prevalence of burnout during and after residency training, the development of a subcompetency centered on well-being represents an important addition to the expectations for graduate trainees, and challenges programs to assess this multifaceted subcompetency (2). Flourishing-focused advising is a technique to assess and develop competence in trainee wellbeing (3). In FFA, programs can build on the existing infrastructure of semiannual advisor and program director meetings to incorporate structured reflection on individual trainee well-being. During this process, the trainee completes a self-assessment of well-being and is prompted to consider the results through a reflective exercise before meeting with their advisor. This assessment is then used as a springboard for structured,

	intentional dialogue between the advisor and trainee during a semiannual review. In this workshop, we will introduce attendees to the FFA framework, explore methods of engaging trainees in conversations about the systemic factors affecting their well-being, and introduce a structured technique to assess and develop competence in trainee wellbeing.
Learning Objectives	By the end of the session, participants will be able to: 1) Describe the challenges of assessing the new harmonized Milestone 2.0 on wellbeing and name two validated instruments to assess domains of trainee flourishing 2) Identify supports for trainee flourishing at their own institution 3) Practice a technique for flourishing-focused advising that can develop competence in wellbeing domains
Session Methods and Format	0:00–0:05: Introduction, outline learning objectives 0:05–0:15: Introduce the construct of Flourishing, the Flourish Index (FI), the ACGME Milestone 2.0 on Well-being, and a framework for Flourishing-Focused Advising (FFA) 0:15–0:25: Participants complete the FI and engage in self-reflection using guided prompts 0:25–0:30: Small group discussion on participants' experience completing the FI and how it felt to reflect on domains of well-being 0:30–0:35: Re-convene in a large group, where individuals share their reflections on the exercise 0:35–0:40: Introduce the “advisor meeting” phase of FFA 0:40–0:45: Show video-taped role play (average flourishing, poor insight) of a trainee-advisor FFA interaction 0:45–0:50: Participants individually determine where the trainee falls on their specialty-specific well-being subcompetency for the trainee featured in the video and discuss rationale in small groups 0:50–0:63: Using a worksheet in small groups, participants brainstorm questions they might use to facilitate a discussion of flourishing domains with trainees (5 min); Participants write down resources they know of at their institution and brainstorm programmatic strategies to support trainees in each domain (8 min) 0:63–0:70: Report back to large group 0:70–0:75: Wrap up / session evaluation
Experience	Dr. Vermette has expertise in physician flourishing and has published articles on flourishing in Academic Medicine and the Journal of Graduate Medical Education.

	Dr. Gielissen has expertise in assessment and has served as the chair of multiple clinical competency committees. She has published on physician thriving.
References	Edgar, L., Roberts, S., & Holmboe, E. (2018). Milestones 2.0: a step forward. Journal of graduate medical education, 10(3), 367-369. Vermette, D., Reardon, J. L., Israel, H. P., Zhen, S., Windish, D. M., & White, M. A. (2022). Development and Validation of a Novel Instrument to Measure the Community Well-Being of Residency Programs. Academic Medicine, 10-1097. Vermette, D., Doolittle, B., & Gielissen, K. A. (2022). Assessing Well-Being in Milestones 2.0: A Case for Flourishing-Focused Advising. Journal of Graduate Medical Education, 14(4), 390-393.
Submitter First Name	Miriam
Submitter Last Name	Hoffman
Submission Title	Building and improving medical education curricula to achieve long term Complex Learning: Instructional design, faculty development and a metacognitive skills curriculum for students
Rationale	As more schools move towards active learning with flipped models, students struggle with systems to approach new content, assess where they are in their overall learning process, and successfully learn new material so they are prepared to apply it (1). Data suggests that these metacognitive gaps are most problematic when the student is working towards higher-order cognitive processing (e.g. application or synthesis) and when effortful learning is required, both of which are features of active learning curricula, intensifying these challenges for students (2). This can manifest in a lack of framing of the material, superficial learning, focusing on the wrong material, taking a deep dive into content at the wrong time or at the wrong depth, and a lot of student effort without the desired result. If students do not have a good system for approaching new and challenging material this not only sets up significant issues for the success of individual students, but also in the effectiveness of the active learning experiences and the active learning curriculum in general. The complex learning model (3) focuses on the integration and transfer of knowledge, skills and attitudes to novel problems and from the classroom to clinical setting. An extension of this model defines the steps of the learning process and learning resources most appropriate for each step. This model can not only be taught to students as part of a metacognitive skills curriculum, but can also be incorporated into the instructional design of pre-clerkship courses. This integration will promote and facilitate students' ability to deliberately proceed through the appropriate steps so that they internalize the complex learning process and use it going forward as they tackle future knowledge gaps and challenges in their clinical training and practice (4). Further, an explicit structure to support the development of metacognitive skills and learning strategies will level the playing field for all learners, regardless of previous training and study skills, making the transition to and success in medical school more equitable (5).
Learning Objectives	1. Define complex learning and describe its application in the design, delivery, and learning within pre-clerkship medical school curricula 2. Describe the importance of teaching metacognitive skills to enable equitable success for students 3. Explain methods of instructional design that will enable students to successfully

	engage in active and flipped curriculum design to promote complex learning 4. Discuss and create plan to incorporate complex learning and metacognitive skills training into their home institutions
Session Methods and Format	Format, Methods, Speakers, Timing (1) Introduction; Definition of Complex Learning and why it is needed in the pre-clerkship curriculum Polling/Ice breaker; Slides MH/PG 15 min (2) Challenges with student engagement and success in active learning curricula Participant discussion JZ 5 min (3) Student megacognitive skills curriculum description and impact Slides MH/MCO 15 min (4) Curricular and Instructional design and faculty development to promote effective complex learning Slides MCO/EK 15 min (5) Implementing at participant's own institutions Small groups discussion using complex learning schematic and worksheet; participants begin development of implementation plan All 15 min (6) Debrief and key takeaways Slides All 10 min
Experience	Molly Cohen-Osher, MD, MMedEd is the Assistant Dean of Medical Education for Curriculum and Instructional Design at Boston University Chobanian and Avedisian School of Medicine. She has facilitated over 50 workshops at national meetings and has led the school through a curriculum redesign. Priya S. Garg is the Associate Dean of Medical Education at Boston University Chobanian and Avedisian School of Medicine. She has facilitated over 30 workshops at national meetings and Chairs the Curriculum Committee for the Academic Pediatric Association's Educational Scholars Programs. Miriam Hoffman, MD is the Vice Dean for Academic Affairs at the Hackensack Meridian

	School of Medicine. She had facilitated numerous faculty development and teaching sessions focused on Complex Learning, EBM, and clinical teaching, and led the development of a new medical school's curriculum. Elizabeth Kolz, EdM is the Director of Instructional and Curriculum Design and an Assistant Professor at the Hackensack Meridian School of Medicine where she engages faculty in developing effective learning sessions using Complex Learning strategies to improve competency-based medical education. Jennifer Zepf, DO is an Associate Professor of Medical Sciences at the Hackensack Meridian School of Medicine where she has led numerous sessions for students and faculty on how to use complex learning strategies to improve engagement with active learning in the preclinical curriculum.
References	(1) Versteeg M, Bressers G, Wijnen-Meijer M, Ommering BW, de Beaufort AJ, Steendijk P. What Were You Thinking? Medical Students' Metacognition and Perceptions of Self-Regulated Learning. Teaching and Learning in Medicine. 2021;33(5):473-482. doi: 10.1080/10401334.2021.1889559(2) White C, Bradley E, Martindale J, et al. Why are medical students 'checking out' of active learning in a new curriculum? Medical Education. 2014;48(3):315-324. doi:10.1111/medu.12356(3) Van Merriënboer JJ, Kirschner PA. Ten Steps to Complex Learning: A Systematic Approach to Four-Component Instructional Design. Routledge; 2017.(4) Cutrer W, Pusic M, Gruppen LD, Hammoud MM, Santen SA. The Master Adaptive Learner. Elsevier Health Sciences; 2019.(5) Amayo J, Heron S, Spell N, Gooding H. Twelve Tips for Inclusive Teaching. MedEdPublish. 2021;10(1). doi:10.15694/mep.2021.000081.1
Submitter First Name	Lisa
Submitter Last Name	Howley
Submission Title	New Foundational Competencies in UME: Updates and NEGEA Perspectives
Rationale	The complex U.S. health care system is changing rapidly. Aging and increasingly diverse patient populations, research and technology advancements, public and population health trends, shifting scopes of practice and new roles, and clinician well-being impact how care is delivered and experienced. For over 20 years, we have been progressing toward implementation of competency-based medical education (CBME), which assures alignment of curriculum and assessment strategies with the needs of patients and populations served by medical school graduates. Despite more than two decades of advancement in CBME, efforts have been siloed in the United States within undergraduate medical education (UME) and within graduate medical education (GME) so that significant gaps remain in aligning competencies across the UME-GME continuum. The recently released Coalition for Physician Accountability Undergraduate-Graduate Review Committee report explicitly addresses this gap, with recommendations to facilitate alignment in CBME implementation across the UME-GME continuum of training. The AAMC, American Association of Colleges of Osteopathic Medicine, and Accreditation Council for Graduate Medical Education recently launched a major collaborative effort to create foundational competencies for UME. This new initiative seeks to enhance horizontal alignment across UME programs and vertical alignment from UME to GME. During the session, participants will discuss the changes in our communities, health care

	delivery systems, and other factors that inform our understanding of what constitutes foundational competencies of medical school graduates as they enter GME.
Learning Objectives	Delineate the need for a standard set of foundational competencies across UME programs that align with GME. Describe the progress of the collaborative project in creating foundational UME competencies that align across the continuum. Identify opportunities to contribute to the collaborative project to define foundational competencies for U.S. medical students.
Session Methods and Format	This session will include an overview of the initiative, updates on data collected to date about the new foundational competencies from 100s of educators, leaders, trainees, and more. Following this overview, the majority of time will be spent inviting feedback from the NEGEA attendees about foundational competencies and the implications for adopting new common competencies across U.S. MD and DO granting medical schools that more closely align across the continuum of medical education. This feedback will be used to inform the longitudinal project.
Experience	Dr Lisa Howley is an educational psychologist with over 25 years experience serving as the Sr Director for Transforming Medical Education at the Association of American Medical Colleges.
Submitter First Name	Vinayak
Submitter Last Name	Jain
Submission Title	MedEd in the time of RVUs: Strategies for Students & Trainees
Rationale	Even though scholarly and educational activities represent two of the three primary pillars at academic medical centers, the opportunity for students/trainees to engage in these are often limited. Long hours during core rotations, multiple high stakes examinations and the overwhelming breadth of clinical medicine make it challenging for students to afford time for meaningful engagement in scholarly activities. In the case of residents and fellows, the need to maintain clinical productivity frequently takes precedence over other forms of scholarly engagement. Working in a healthcare system that is often overburdened with patient volume and bureaucratic red tape leaves little time and inclination to pursue experiences that can advance one's personal and professional goals. Additionally, compensation-based systems rewarding faculty for their academic productivity remain sparse, further limiting opportunities for mentorship or guidance offered to students and trainees. Scholarly and educational productivity is integral to not just advancement of one's career, but also advancement of academic medicine. There is thus a need to highlight strategies for students & trainees to translate their existing work in Medical Education into scholarship for more impact, more venues, and to reach wider audiences.
Learning Objectives	1.) Strategies to secure institutional buy-in for educational scholarship as students & trainees. 2.) Describe the creation of an 'academic signal' and its importance in residency/fellowship applications.

	3.) Navigate scholarship opportunities and resources available to students & trainees interested in Medical Education.
Session Methods and Format	5 min: Introduction of facilitators and objectives of workshop. 10 min: Group Discussion on unique challenges in getting involved in MedEd as students/trainees. 10 min: Strategies to secure institutional buy-in. 15 min: Participants divided into teams of 'Administration' and 'Trainees' to practice 'buy-in' strategies. 15 min: Leveraging 'academic signal' for residency/fellowship applications; invite experience of participants. 10 min: Participants create a 'Mock Educator Portfolio' based on available scholarly opportunities and personal goals. 10 min: Questions and Conclusion
Experience	Vinayak Jain: Resident Physician in Internal Medicine at MedStar WHC who also serves as an Editorial Fellow with AMA Journal of Ethics curating an issue on critical pedagogies. Involved in GME related research projects as part of the Teaching Academy at Georgetown. Jamie Rowell: Chief Resident in Internal Medicine at UVM with a wide range of experience in medical education and systems improvement. Involvement in teaching, research and mentoring. Emily Greenberger: Associate Program Director in Internal Medicine at UVM with a special focus on teaching clinical reasoning. Course director for the fourth-year medical student course Preparation for Practice at UVM, which focuses on professional identify formation and applying for residency.
References	1.) Lessing, Juan N. MD1; Mark, Nicholas M. MD2; Pierce, Read G. MD3. How to Get More Juice From Each Squeeze: Maximizing Outputs From Academic Efforts. Academic Medicine: July 2022 - Volume 97 - Issue 7 - p 1089 2.) Renner CS, Sumarsono A, Mathew A, Warsi M, Niaz U, Patel V, Chu ES. Scholarly productivity and growth of academic hospital medicine full professors. J Hosp Med. 2022 Jul;17(7):509-516. 3.) Vande Vusse et al Maximizing Career Advancement During the COVID-19 Pandemic: Recommendations for Postgraduate Training Programs. Academic Medicine: July 2021 - Volume 96 - Issue 7 - p 967-973 4.) Ma, O. John MD et al. The Academic RVU: Ten Years Developing a Metric for and Financially Incenting Academic Productivity at Oregon Health & Science University. Academic Medicine: August 2017 - Volume 92 - Issue 8 - p 1138-1144
Submitter First Name	Elizabeth
Submitter Last Name	Kachur
Submission Title	Formative OSCE Stations that Address Racism and Other Biases – Skills Practice and Discussion Opportunity
Rationale	Recent events have highlighted the need for equipping clinicians with the necessary knowledge, skills and attitudes to successfully address racism-related issues with patients, families and colleagues. Formative OSCEs have proven to be effective and efficient training tools for addressing complex interpersonal situations. After the station encounter, learners can receive multi-source feedback and debrief with colleagues and faculty about best practice strategies. Over the years a variety of OSCE stations that address racism and other biases have been

	developed. They can be categorized as focusing on patient encounters (e.g., sequelae of historic racism), encounters with colleagues (e.g., confronting racist behaviours in others and demonstrate allyship), and managing bias and microaggressions when learners themselves are the target (e.g., rejection of care providers because of their personal characteristics). These are difficult stations for everyone involved, but with adequate post-encounter debriefing they can help learners to better master such noxious encounters in the future. This workshop will address the pros and cons of each station type to help participants match the OSCE station type with specific curriculum needs.
Learning Objectives	By the end of the presentation attendees should be able to: 1. Describe several types of OSCE stations that address racism and other biases 2. Address the sensitive nature of bias-related stations for learners, Standardized Participants (SPs) and faculty 3. Select the OSCE station type that best fits local curriculum needs.
Session Methods and Format	10 min – Welcome, Introductions, Definitions 15 min – Challenges regarding teaching about racism and bias (polling & word cloud) 15 min – Racism and Bias-related OSCE Station Types (presentation with video) 15 min – Matching Station Type with Curriculum Needs (case discussion in small groups) 15 min – Report to Large Group (including polling for best matches) 5 min – Summary and Take-Home Points
Experience	Elizabeth Kachur, PhD – Medical educator who has published and presented nationally and internationally on OSCEs and anti-racism and culture-related medical education. Dennis Novack, MD – Associate Dean for Education, has worked on OSCEs for decades and recently received a multi-institutional Macy Foundation grant to create tools for anti-racism education Lisa Altshuler, PhD –Medical educator who has been intimately involved in anti-racism and culture-related teaching and OSCEs, publishing and presenting widely
References	Not referred to in the text but the references will become part of the handout:Acholonu, R.G., et al., Interrupting Microaggressions in Health Care Settings: A Guide for Teaching Medical Students. MedEdPORTAL, 2020. 16: p. 10969. Aeder L., Altshuler L., Kachur EK, Barrett S, Hilfer A., Koepfer S, Schaeffer H, Shelov SP. The “Culture OSCE” - Introducing a Formative Assessment into a Postgraduate Program. Educ Health 20(1):11-11, 2007.Aeder L, Altshuler L, Kachur E, Langenau E. Fostering an Atmosphere of Professionalism in a Residency Program: Learning How to Address the Unprofessional Behavior of Colleagues through OSCEs. MedEdPORTAL, 2012. FitzGerald C and Hurst S, Implicit bias in healthcare professionals: a systematic review. BMC Med Ethics, 2017. 18(1): p. 19. Hill, KA, et al, Assessment of the Prevalence of Medical Student Mistreatment by Sex, Race/Ethnicity, and Sexual Orientation. JAMA Intern Med, 2020. 180(5): p. 653-665. Kachur EK, Zabar S, Hanley K, Kalet A, Hyland Bruno J, Gillespie CC. Organizing OSCEs (and other SP Exercises) in Ten Steps. (pp. 7-34) In Zabar S, Kachur EK, Kalet A, Hanley K (eds). Objective Structured Clinical Examinations. 10 Steps to Planning and Implementing OSCEs and Other Standardized Patient Exercises. New York: Springer, 2013.Paul-Emile K, Smith AK, Lo B, Fernandez A. Dealing with Racist Patients. NEJM 374(8):708-11, 2016.Peek, ME, Vela MB, and Chin MH, Practical Lessons for Teaching About Race and Racism: Successfully Leading Free, Frank, and Fearless Discussions. Acad Med, 2020. 95(12S Addressing Harmful Bias and Eliminating Discrimination in Health Professions Learning Environments): p. S139-S144. Sue DW, Calle ZZ, Mendez N, Alsaidi S, Glaser E. Microintervention Strategies: What You Can Do to Disarm and Dismantle Individual and Systemic Racism and Bias. 2021. https://www.wiley.com/en-

	us/Microintervention+Strategies%3A+What+You+Can+Do+to+Disarm+and+Dismantle+Individual+and+Systemic+Racism+and+Bias-p-9781119769989Sue DW, Capodilupo CM, Torino GC, Bucceri JM, Holder AMB, Nadal KL, and Esquilin M. Racial Microaggressions in Everyday Life Implications for Clinical Practice. American Psychologist, 62(4), 271–286. https://doi-org.ezproxy.med.nyu.edu/10.1037/0003-066X.62.4.271
Submitter First Name	Felise
Submitter Last Name	Milan
Submission Title	Moving Forward: Updates and Current Progress of The CLASS Project
Rationale	The cancellation of USMLE Step2 CS/Complex Step2 PE has provided an opportunity for a national conversation about clinical skills standards and assessment. The permanent suspension of this examination has created a void in the learning continuum that leaves room to consider a new approach for defining and assessing core clinical skills. This conversation should involve stakeholders across the medical education continuum – UME, GME, and CPD – as well as our most important constituents, patients. Initiated in August 2021, The Clinical Skills Assessment and Standardization (CLASS) project represents a national, collaborative effort focused on re-examining core clinical skills in the context of the evolution of medicine. There are 12 taskforces that have each been given designated charges and questions grounded in the fundamental queries: Why, What, How, Who, When, and Where. A Technology taskforce is examining the role of technology in re-envisioning clinical skills assessment. The taskforces each present to two advisory committees who are guiding the process. The almost 400 volunteer participants from our diverse educator community reflect the widespread interest in this important topic; the process, structure, involvement, and size of the project is unique.
Learning Objectives	By the end of the session, attendees will be able to: 1. Describe the rationale, background and progress of the CLASS Project 2. Contribute knowledge and additional perspective to ongoing topics of discussion within each Taskforce. 3. Compare strategies for clinical skills assessment from their institution with interim recommendations and findings from the CLASS Project.
Session Methods and Format	30 min – Introduction and Overview of the CLASS Project including progress of each Taskforce 25 min: Participants will participate in one of seven small groups each pertaining to one of the CLASS Project Taskforces: Why, What, When, Where, How, Who and Technology. Using a worksheet, for uniformity of data collection, they will work together to answer a set of provocative questions e.g. 1. “Who are the stakeholders in clinical skills assessment? Which stakeholder group is the primary beneficiary of a national standard for clinical skills assessment and why?” 2. “How would medical educators design a study to evaluate the impact of standardized clinical skills assessment?” 3. “Is there value to assessing clinical skills along the continuum of medical education; undergraduate, graduate and clinical practice? If so, how could this be done? ” 4. What could the role of technology be in clinical skills assessment and why? 5. Since clinical skills assessment is a resource intense process, how do we manage the great disparities of resources in different institutions?

	15 min -Groups Report – the work product of each small group will be collected and will be circulated to the Task Force groups. 5 min – Conclusion and Future Directions
Experience	Nag Gabbur-CLASS Chair Felise Milan-HOW1 Chair Jennifer Kogan-WHO2 Chair Steve Rougas-GEA liason for WHAT Tracy Kedian-WHY1 vice-chair Ruth Crowe-WHY2 Chair Jules Jung-HOW2 Chair Yoon Kang-Technology Chair
References	1. Yudkowsky R, Szauter K. Farewell to the Step 2 Clinical Skills Exam: New Opportunities, Obligations, and Next Steps. Acad Med. 2021 Sep 1;96(9):1250-1253.2. Kogan JR, Hauer KE, Holmboe ES. The Dissolution of the Step 2 Clinical Skills Examination and the Duty of Medical Educators to Step Up the Effectiveness of Clinical Skills Assessment. Acad Med. 2021 Sep 1;96(9):1242-1246.3. Howley LD, Engle DL. Discontinuation of the USMLE Step 2 Clinical Skills Examination: Studying the Past to Define the Future. Acad Med. 2021 Sep 1;96(9):1247-1249.4. Baker TK. The End of Step 2 CS Should Be the Beginning of a New Approach to Clinical Skills Assessment. Acad Med. 2021 Sep 1;96(9):1239-1241.
Submitter First Name	Cate
Submitter Last Name	Nicholas
Submission Title	Rewiring the Feedback Look- Turning Dread into Delight
Rationale	Feedback- we hate to give it and we hate to receive it. What if we could rewire our concept of feedback? What if we could not wait to have a feedback conversation with our learners? Even better, what if our learners sought us out to have that feedback conversation? Better yet what if the feedback conversation turns into performance improvement How can we turn feedback from dread to delight?
Learning Objectives	1. Explore challenges associated with giving and receiving feedback. 2. Understand your own and other communication styles using a validated tool called "What is your Color?" 3. Apply a 4 step process to the feedback conversation 4. Consider 3 concepts to address feedback challenges at home
Session Methods and Format	5 minutes- Set the stage/intros didactic 5 minutes- Challenges to getting and receiving feedback- Small Group work and sharing 10 minutes- What is the problem? Review of literature- Didactic 10 minutes- What is your color activity- fill out survey and share 10 minutes- Exploring different aspects of color assessment tool- Didactic 10 minutes- Review 4 step process- Didactic 10 minutes- Practice 4 step process- Small group work 10 minutes- Three concepts to improve feedback culture at home- Didactic 5 minutes- Questions and closure

Experience	By understanding and exploring different communication skills and applying a new approach to the feedback loop, we can turn dread into delight for ourselves and our learners.
References	https://www.canr.msu.edu/news/real_colors_a_tool_for_discovering_personality_temperament_part_1Ajjawi and Regehr (Ajjawi R, Regehr G. When I say… feedback. Medical education. 2019 Jul;53(7):652-4.) propose a new definition.Ramani S, Könings KD, Ginsburg S, van der Vleuten CP. Feedback redefined: Principles and practice. Journal of general internal medicine. 2019 May 15;34(5):744-9.Telio S, Ajjawi R, Regehr G. The "educational alliance" as a framework for reconceptualizing feedback in medical education. Academic Medicine. 2015 May 1;90(5):609-14.Sutton Paul. Conceptualizing feedback literacy: knowing, being, and acting. Innovations in Education and Teaching International. 2012 Feb 1;49(1):31-40.
Submitter First Name	Kiran
Submitter Last Name	Pandit
Submission Title	"Building your Teaching Portfolio: The Power of Self-Assessments"
Rationale	Evaluation of teaching is critical for both growth in teaching ability and for academic advancement. Traditional over-reliance on "student evaluations of teaching" neglects the importance of self-assessments and peer-assessments in a multifaceted approach to evaluation of teaching. We, as medical educators, can learn to complement learner-based teaching assessments with well-designed self-assessments that can stimulate improvements in our teaching as well as build our teaching portfolios. The clinician-educator milestones recently advanced by AAMC highlight the importance of reflective practice and commitment to personal growth (Universal Pillar 1), effective teaching practices (Educational Theory and Practice 1), and the science of teaching and learning (Educational Theory and Practice 8). Self-assessments can serve to move us forward in these milestone rubrics, as they are based on reflective practice, focused on setting learning goals for our own teaching using best evidence of effective teaching practices.
Learning Objectives	As a result of active participation in this session, educators will be able to use a systematic approach to reflect on their own teaching, demonstrate a growth mindset oriented self-awareness from these reflections, and formulate learning goals based on best evidence of effective teaching practices.
Session Methods and Format	The first 15 minutes will be large-group format, with introductions and an overview of the workshop structure. Background information will be provided on the multi-faceted approach to teaching assessments, clinician-educator milestones, and a high-quality self-assessment instrument. The next 15 minutes will be for individual reflection and completion of three self-assessments. The following 10 minutes will be for participants to share elements of their reflections and self-assessments with a peer sitting next to them, and for those peers to share any patterns they observed in the self-assessments. Then the group will come together again for a 10-minute overview of resources available for learning of best evidence of effective teaching practices. Participants will then spend 10 minutes working independently to formulate and write 3 learning goals, including resources appropriate to each goal. The last 15 minutes will be for the participants to share their learning goals and strategies with the large group and to declare their take-away points from this session.

Experience	Kiran Pandit is a clinician-educator who is working on a grant-funded initiative to develop teaching assessments for Columbia University Emergency Medicine faculty.
References	1 Kreitzer, R. (2021) Evaluating Student Evaluations of Teaching: a Review of Measurement and Equity Bias in SETs andRecommendations for Ethical Reform. Journal of Academic Ethics. 20, 73-84. 2 Wieman, C. (2019) Expertise in University Teaching & the Implications for Teaching Effectiveness, Evaluation & Training. Daedalus, the Journal of the American Academy of Arts & Sciences. 47-78. 3 Ross, C (Host). (2021, Oct 21). Dead Ideas in Faculty Evaluation with Kevin Gannon", [Audio podcast episode] In DeadIdeas in Teaching and Learning, Columbia University Center for Teaching and Learning. 4 Dweck C. (2006). Mindset: The New Psychology of Success. New York: Random House. 5 McMurtrie, B. (2021). The Damaging Myth of the Natural Teacher. The Chronicle of Higher Education. 68(5).6 Association of American Medical Colleges. (April, 2022). The Core Entrustable Professional Activities (EPAs) forEntering Residency. https://www.aamc.org/what-we-do/mission-areas/medical-education/cbme/core-epas 7 Accreditation Council for Graduate Medical Education. (April, 2022). Milestones. https://www.acgme.org/what-we-do/accreditation/milestones/overview/8 A joint effort of the Accreditation Council for Graduate Medical Education, the Accreditation Council for ContinuingMedical Education, the Association of American Medical Colleges, and the American Association of Colleges ofOsteopathic Medicine (April, 2022) Clinician Educator Milestones.https://www.acgme.org/whatwedo/accreditation/milestones/resources/clinician-educatormilestones/#:~:text=The 20Clinician 20Educator 20Milestones 20provide,to 20provide 20feedback 20and 20assessment9 Weaver, G. C., Austin, A. E., Greenhoot, A. F., & Finkelstein, N. D., "Establishing a Better Approach for EvaluatingTeaching: The TEval Project," Change: The Magazine of Higher Learning, 52(3), 25-31. (2020). 10 Mann, K. (2009) Reflection and reflective practice in health professions education: a systematic review. Advances inHealth Sciences Education: theory and practice. 14(4), 595-621. 11 Steinert, Y. (2010) Faculty Development: from workshops to communities of practice. Medical Teacher. 32(5), 425-428
Submitter First Name	Michael
Submitter Last Name	Sulzinski
Submission Title	Reimagining Faculty Promotion in a Changing Environment for Health Professions Education
Rationale	An increasing number of medical schools have undergone, or plan to undergo, undergraduate education curricular revision. The revision often includes better integration of foundational and clinical science education, incorporation of new themes such as population health and health systems science, and specialty education before graduation. A consequence of such new and integrated curricula is a diversification of the teaching faculty, with fewer faculty operating within the traditional model of health professions education and more faculty operating within a model oriented toward patient care and access and economic healthcare stability. For those faculty working in diverse educational and clinical settings, this necessitates a reimagination of the means to demonstrate excellence for promotion. This workshop will provide participants with creative ideas to demonstrate that they have satisfied institutional standards for promotion of health professions educators.
Learning Objectives	Participants will: - Describe the changing landscape of health professions education and the challenges this

	presents with recognizing excellence for promotion - Given hypothetical scenarios of health professions educators in diverse roles (e.g., practicing physician, teaching educator, and educational administrator), engage with colleagues in examining determinants of excellence for promotion. - Cultivate innovative ideas for what counts for educator promotion, to take back to the home institution.
Session Methods and Format	15 min: Opening Introductions and Poll of participants to gauge demographics (e.g., clinical vs basic science; instructor, associate professor, etc.); Review of the objectives and orientation to session 25 min: Small group exercise: hands-on/active learning. After a brief introduction of the problem setting and the experience of the workshop facilitators, we will divide the participants into three small groups. Each group will receive a different brief theoretical faculty biography. The commonality of all biographies is that each faculty used a scholarly approach to reach their goal based on the institute mission, but each dossier is weak on high-impact dissemination and national/international recognition. The participants will articulate the issues and unique challenges and recommend courses of action towards promoting the faculty member with an emphasis on innovative determinants of what would count toward promotion. A session facilitator will record (a) standards that must be present for promotion independent of the setting and (b) new ideas that are not often part of traditional promotion guidelines. 25 min: Large group reconvenes for active learning/sharing, to highlight and record best practices and innovative ideas from small groups regarding what counts toward promotion. 10 min: Wrap-up: Summary of what we have accomplished. Each participant takes home knowledge and skills for promotion at their institution. To continue to engage participants after the session, we will disseminate an organized document to foster networking and continue the discussion of reimagining promotion for health professions faculty.
Experience	John Arnott is Chair of Department of Medical Education (DME). Youngjin Cho is Director, Integrated Sciences. Michael Sulzinski is Chair, DME Committee on Promotion and Tenure. John Szarek is Vice Chair, Curriculum. Janet Townsend is Vice Dean of Faculty Affairs. Gabi Waite is Vice Chair, Education.
Submitter First Name	Jennifer
Submitter Last Name	Todd
Submission Title	Professionalism, Communication, & Reflection: A blueprint for fostering development of professional identity and communication skills for medical students
Rationale	Medical professionalism has been promoted as a core clinical competency for medical students to develop, yet this can be a challenging subject to incorporate into the medical education curriculum. Literature on teaching medical professionalism suggests we cannot

	merely focus on appropriate behavior with patients and colleagues. We must also foster self-awareness, emotional intelligence, and the capacity to care for self and others. At the Larner College of Medicine, the Professionalism, Communication, and Reflection (PCR) class is a multi-year course comprised of small, process-oriented discussion groups with a faculty preceptor. This course cultivates self-awareness, emotional intelligence, mindfulness, and the capacity to care for self and colleagues. PCR groups create time and space for students to work and reflect together on their experiences in medical school to prepare themselves intellectually and emotionally for a career in medicine. This workshop will demonstrate methods used in this course to engage students in developing their professional identies. Workshop participants will learn strategies to create a brave space to foster discussion and reflection.
Learning Objectives	• Discuss elements of professionalism and how it may be fostered in medical school • Practice techniques that can be used in preclinical small groups to cultivate professionalism • Identify ways to integrate curriculum on professionalism into existing preclinical courses or develop a new course on professionalism
Session Methods and Format	1. Overview-15min: Brief didactic presentation on goals of professionalism courses, essential facilitation skills, and tools for promoting engagement 2. Facilitated breakout sessions-45min: In small groups, participants practice techniques promoting engagement and communication by engaging in sample exercises from the PCR curriculum. Group discussion will center on strategies for creating brave spaces, fostering an environment for effective discussion, and advancing and deepening conversations. 3. Large group discussion-15 min: Participants share their experiences from the small groups, and reflect on how to create or strengthen professionalism curricula at their home institutions. Facilitators present a closing summary of methods shared and takeaways generated.
Experience	• Jennifer Todd MD, Assistant Professor of Pediatrics, Pediatric Endocrinology Division Education Coordinator, member of the LCOM Teaching Academy • Nina Gluchowski MD, Assistant Professor of Pediatrics, Pediatric Gastroenterology Division Education Coordinator • Molly Rideout MD, Professor of Pediatrics, Vice Chair of Education for the Dept of Pediatrics, Distinguished Educator in the LCOM Teaching Academy, member of the Executive Committee of the Council of Medical Student Educators in Pediatrics, 2021 winner of the Outstanding Innovation Award in Curriculum Development • Stephen Berns MD, Associate Professor of Family Medicine, Director of Education, Division of Palliative Medicine, Master Teacher in the LCOM Teaching Academy, and Director for the Professionalism, Communication, and Reflection course
References	1. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A Schematic Representation of the Professional Identity Formation and Socialization of Medical Students and Residents: A Guide for Medical Educators. Acad Med. 2015 Jun;90(6):718-25. https://journals.lww.com/academicmedicine/Fulltext/2015/06000/A_Schematic_Representation_of_the_Professional.13.aspx2. Passi V, Doug M, Peile E, Thistlethwaite J, Johnson N. Developing medical professionalism in future doctors: a systematic review. https://www.ijme.net/archive/1/developing-medical-professionalism-in-future-doctors/3. Birden H, Glass N, Wilson I, Harrison M, Usherwood T, Nass D. Teaching professionalism in medical education: A Best Evidence Medical Education (BEME)

	systematic review. BEME Guide No. 25. Med Teach. 2013 Jul;35(7):e1252-66. https://www.tandfonline.com/doi/full/10.3109/0142159X.2013.789132
Submitter First Name	Matthew
Submitter Last Name	Tsai
Submission Title	Digital Tools for Medical Education: How to Design your own Infographic
Rationale	As medical literature continues to grow and time for learning remains limited, trainees are increasingly using digital resources such as podcasts and visual media. Infographics, in particular, concisely illustrate complex information and facilitate knowledge transfer with equal to better audience engagement and retention than traditional medical literature alone [1,2]. These educational tools can be easily incorporated into existing avenues of knowledge dissemination, from in-person or virtual classrooms to social media [3]. The purpose of this workshop is to provide educators the basic skills to design effective infographics which they can deploy in various teaching duties.
Learning Objectives	During this workshop, participants will 1) review the value of infographics to medical education, 2) identify principles of effective infographic design, 3) practice using the free online web design tool Canva, 4) utilize above principles within the scope of their teaching duties, and 5) independently design an infographic using Canva on a topic of their choosing.
Session Methods and Format	This skill-building session incorporates small group discussions and hands-on activities. Introduction. Dr Trivedi will introduce workshop content and compare and contrast infographics to highlight best practices of design and communicating medical information (10 min) Skill Session. Dr Tsai and Dr Kim will challenge each participant to sketch an infographic design on a sample topic. These designs will be reviewed with the group to facilitate discussion on effective infographic design principles. One sketch will be selected for production on Canva in real time. This step by step process will be projected visually, but participants will replicate each step on their own laptops. Additional infographic building tips, like locating free icons and color schemes, will be reviewed (25 min) Small Group Discussion. Participants will break out into small groups of 5 or less people to answer discussion questions on how to implement infographics effectively in their teaching duties. Dr Tsai and Dr Kim will review discussion points with the audience and identify common themes. (10 min) Infographic Practice. Participants will design their own infographic on Canva on a topic of their choosing. Instructors will circulate the room to answer questions, provide technical support and offer feedback (20 min) Conclusion. Summary of learning points and a celebration of participant infographics (10 min)
Experience	Dr Casey Kim MD (@caseyjkim) and Dr Matthew Tsai MD (@thematttsai) are internal medicine residents in the Digital Medical Education Track at Beth Israel Deaconess Medical Center (BIDMC). Dr Kim's digital education work includes infographics and tweetorials with up to 220,000 impressions on twitter and podcast episodes for PennHealthX and Anti-Viral: The COVID19 Curriculum for Health Professional Students Podcast. Dr Tsai's digital education work includes infographics and tweetorials with up to 521,000 impressions and podcast episodes as former co-host of the podcast Green

	Mountain Medicine. Dr. Shreya P. Trivedi MD is a General Internist and co-director of iMED, Innovations in Media and Education Delivery at BIDMC. She is the Editor-in-Chief of Core IM and lead correspondent of the Curbsiders Podcast. She has worked with over 50 residents and faculty in developing peer-reviewed medical education episodes and infographics.
References	1. Hughes AJ, McQuail P, Keogh P, Synnott K. Infographics improve comprehension and recall at the orthopaedic journal club [published online ahead of print November 16, 2020]. J Surg Educ. doi:10.1016/j.jsurg.2020.10.0122. Trivedi SP, Chin A, Ibrahim A, Ou A. Infographics and Visual Abstracts. J Grad Med Educ. 2021 Aug;13(4):581-582. doi: 10.4300/JGME-D-21-00590. Epub 2021 Aug 13. 3. Spicer JO, Coleman CG. Creating Effective Infographics and Visual Abstracts to Disseminate Research and Facilitate Medical Education on Social Media. Clin Infect Dis. 2022 May 15;74(Suppl_3):e14-e22. doi: 10.1093/cid/ciac058.
Submitter First Name	Athina
Submitter Last Name	Vassilakis
Submission Title	Transition courses at the end of required clinical clerkships: a step into the future of the educational continuum
Rationale	Transitions within medical training are important to leverage in medical curricula given the high-yield learning opportunity associated with these important periods (1). Transition courses at the end of pre-clinical training and then near graduation to prepare students for residency have become a routine part of undergraduate medical curricula. A crucial transition period that has received less attention is the juncture at the end of the required clinical clerkships going into acting internships / sub-internships and the differentiation phase of the undergraduate medical curriculum. It is a key time-point to assess skills related to the recently suspended USMLE step 2 CS examination, prepare students for advanced clinical skill performance, and support students in their choice of specialty and application process. This workshop guides participants interested in developing or enhancing their own transition course to target this specific juncture.
Learning Objectives	1. Discuss goals and frameworks of transition courses for a systematic application to courses at the end of required clerkships. 2. Brainstorm student and institutional needs at the specific juncture targeted 3. Describe examples of currently existing transition courses at this juncture and how they address specific needs of students and institutions 4. Guide participants to identify their institution's and students' needs as well as solutions that can be incorporated into a transition course at their home institutions.
Session Methods and Format	The session will be led by faculty from 3 different institutions who will guide participants through a framework for needs assessment applying three conceptual perspectives typically used in transition courses: an educational perspective, a social perspective and a developmental perspective (2). Faculty will share their institutions' transition course content and experiences as examples to illustrate these elements. Participants will complete the workshop with an understanding and appreciation of student and institutional needs as well as curricular elements that can be incorporated into a transition course at the end of the required clinical clerkships. They will also brainstorm specific needs for their institution to help them develop a plan of action for their own course.

	0:00 – 0:10 Introductions, outline of goals and learning objectives 0:10 – 0:15 Framing through brief review of goals and conceptual perspectives to approach transition courses 0:15 – 0:25 Large group brainstorming: student and institutional curricular needs (educational, social and developmental) at the end of required clinical clerkships 0:25 – 0:35 Examples of foci in our institutions focusing on similarities and differences 0:35-0:50 Small group breakout session: Exploring Local Needs: What does your institution currently do to support students at this juncture? What are some remaining student and/or institutional needs? What are potential solutions to address these gaps? 0:50 – 0:70 Large group debrief and discussion including bird's eye view of curriculum 0:70-0:75 Session Evaluation
Experience	Drs Greenberger and Vassilakis are current course directors for transition courses targeting the juncture at hand and have extensive experience in clinical skills education. Dr Ragsdale is assistant dean for clinical education and focuses on clinical skills. Dr. Lee is senior associate dean for curricular affairs.
References	1. Kilminster S, Zukas M, Quinton N, Roberts T. Preparedness is not enough: understanding transitions as critically intensive learning periods. Med Educ. 2011 Oct;45(10):1006-15. doi: 10.1111/j.1365-2923.2011.04048.x. PMID: 21916940.2. Atherley A, Dolmans D, Hu W, Hegazi I, Alexander S, Teunissen PW. Beyond the struggles: a scoping review on the transition to undergraduate clinical training. Med Educ. 2019 Jun;53(6):559-570. doi: 10.1111/medu.13883. Epub 2019 Apr 23. PMID: 31012141; PMCID: PMC6593677.
Submitter First Name	Laure
Submitter Last Name	Veet
Submission Title	Use of a Whole Health Personal Health Inventory by First Year Medical Students to Assist Community-Based Patients Achieve Health and Wellness Goals
Rationale	Community-based learning is part of the curriculum in many US medical schools. (1) However, the need for continued development of community-engaged opportunities continues to be recognized. (2) Given the competing demands for allocated time in the curriculum, community-engaged experiences must efficiently optimize benefits for both students and the community. We present the use of a whole health personal health inventory tool (WH-PHI) and SMART goal template to enable students to proficiently determine and address community-based patients' wellness goals, providing both experiential learning for students as well as providing benefits for patients. At the start of a 3-year, longitudinal relationship with a patient in the community, students use a version of a WH-PHI adapted from the Veterans Health Administration and the Whole Health Institute to identify what matters most to the patient and assist the patient with developing SMART goals to support health and wellness. The hope is that students learn the importance of an individual's unique story including the impact of determinants of health on health and wellness, and that patients are able to achieve specific health and wellness goals. (1) Source: AAMC Curriculum Inventory, 2018-2019.

	(2) Source: Health Equity in Academic Medicine: Recommendations From AAMC Community Roundtable, Washington DC 2021
Learning Objectives	Learning Objectives: At the end of this session, participants will be able to: 1. Utilize a whole health personal health inventory tool to identify an achievable goal to support health and wellness 2. Utilize a SMART goal template to create an action plan to address a goal that supports health and wellness 3. Develop curricula that utilize a WH-PHI to enhance experiential learning for students and supports health and wellness of patients 4. Recognize a personal health and wellness goal using a WH-PHI tool and SMART goal
Session Methods and Format	Presentation: An overview of HD Course and VP program, the WH-PHI and SMART goal template and examples of how these tools have been used by students are provided. Individual activity: Participants complete WH-PHI for themselves and select one self-care area of focus. Participants complete a SMART goal worksheet for their one area of focus. Table discussion: Using question prompts, groups discuss benefits and challenges of using the templates, experience with using similar tools, and potential ways to use the templates as part of experiential learning at their site. Regroup: Each table reports one major takeaway and closing statements are provided.
Experience	Dr. Rocchetti is a leader in community engaged medical education with 14 years of experience as a clinical educator and is the founding Director of the Human Dimension Course at Hackensack Meridian Health. Dr. Rosen is a pediatrician and yoga instructor, serving as Assistant Director of the Human Dimension Course at Hackensack Meridian Health. Dr. Veet is an internist with 25 years of leadership and medical education experience including eight years of national program experience in the Veterans Health Administration Headquarters.
References	(1) AAMC Curriculum Inventory, 2018-2019.https://www.aamc.org/data-reports/curriculum-reports/interactive-data/service-learning-academic-level (2) Fair M, Johnson SB, Fluker CJ, Carkuff-Corey K. Health Equity in Academic Medicine: Recommendations From an AAMC Community Roundtable in Washington, D.C. Washington, DC: AAMC; 2021.Veterans Health Administration Whole Health Personal Health Inventory https://www.va.gov/wholehealth/docs/10-773_PHI_July2019_508.pdfWhole Health Institute Reflection Tool https://www.wholehealth.org/resources/reflection-tool
Submitter First Name	Ann
Submitter Last Name	Zumwalt
Submission Title	Why your students are so upset about sex and gender: Navigating a changing culture in medical teaching
Rationale	It is common practice in medical education to describe information in the context of binary sex- and gender-based categories. However, this framing negates the reality that

	many individuals and biological features do not fit into binary categories, and may contribute to the striking health and healthcare disparities experienced by sexual and gender minority individuals (1). Students are increasingly aware of the limitations of binary sex/gender framings and vocal that faculty should modify their teaching to be more inclusive. However, faculty often struggle to understand this feedback or how to respond to it. The purpose of this workshop is to help educator faculty understand the motivations for the student feedback and to provide practical skills for reframing information in ways that are both inclusive and accurate. The workshop will illuminate how different generational perspectives on sex and gender create this disconnect. It will then highlight the pervasiveness of binary framings in medical education. Participants will learn and practice concrete skills for how to frame sex/gender information in an inclusive way while teaching and in teaching materials.
Learning Objectives	• Describe how changing cultural perspectives on sex and gender impact both medical learners and medical educators in the classroom • Describe three common contexts in which sex and gender are addressed in medical education and how traditional framings are imprecise or exclusionary • Demonstrate skills to modify live teaching and educational materials to include best practices for framing sex/gender to maximize inclusivity
Session Methods and Format	Translating the student perspective (15 minutes) Exploration of how the changing cultural perspectives on sex and gender drive the disconnect between student and faculty viewpoints. Foundational concepts and definitions. Pulling off the blinders (20 min) Exploration of three contexts in which medical educators regularly use sex and gender [descriptions of: (1) biological traits, (2) groups of people, and (3) individual people] and often unknowingly reinforce limiting binaries. Practical approaches for ensuring inclusivity are described for each context. Practice at the growth edge (30 min) Participants will work in groups of 5-8. They will be provided three common medical teaching scenarios and decide how to approach each scenario with inclusive framing around sex and gender. Scenarios will be appropriate for both basic science and clinician educators. Lessons learned and challenges (10 min) Groups will reconvene to describe their solutions and discuss challenges encountered during the exercise. Additional tools for continuing education will be shared.
Experience	Ann Zumwalt, PhD has 15+ years' experience a basic science (anatomy) educator and 4+ years' experience first assessing and now leading the sexual and gender minority content of the medical curriculum at her institution. Jennifer Siegel, MD is currently the Medical Director of the MGH Transgender Health Program and was previously the Medical Director of the Center for Transgender Medicine and Surgery (CTMS) at Boston Medical Center as well as the Associate Program Director of the BMC Internal Medicine Residency Program.

References	(1) Hsieh, N., & Shuster, S. M. (2021). Health and Health Care of Sexual and Gender Minorities. Journal of Health and Social Behavior, 62(3), 318–333. https://doi.org/10.1177/00221465211016436

Oral Abstracts

Submitter First Name	Isra
Submitter Last Name	Abdulwadood
Submission Title	The Advancement of Improved Diversity in Medical Education: An Introduction to the Diversity, Equity, Inclusion and Anti-Racism Teaching Assistant Program
Objective or purpose of innovation	The "Diversity, Equity, Inclusion, and Anti-Racism (DEI-AR) Teaching Assistant (TA) Program" was established in 2020 in order to engage both students and faculty in addressing and improving diverse representation in medical education at the Mayo Clinic Alix School of Medicine (MCASOM).
Background and/or theoretical framework and importance of the field	Much has been published on the negative effects of racism on patient health outcomes, including inequitable access to quality health care, increased exposure to unhealthy environments and behaviors, and adverse psychopathology associated with the act of experiencing racism. While these concepts are widely reported, the literature describing the role medical education plays in promoting diversity and anti-racism efforts is lacking. To bridge this gap, MCASOM has implemented a student-faculty partnership to address opportunities for curricular integration of DEI material.
Innovation design	Student TA training explores the project's scope, longitudinal action items, and current nationwide DEI topics.
Evaluation Plan: methods and measures	Biweekly team meetings and a shared tracking dashboard provide a consistent opportunity to share initiatives, status updates, and guidance. Course directors are provided with standardized resources and up to 6 months of TA support to cultivate an iterative approach to revisions.
Outcomes	The outcomes are assessed through standardized, anonymous post-course student evaluations. These evaluations collect quantitative and qualitative data which, thus far, have shown improvement in the metrics related to DEI engagement in conversations and imagery. Evaluation response rates are often greater than 50% within the first four weeks of survey release.
Innovation's strengths and limitations	This program promotes longitudinal collaboration, vital curriculum enhancements, psychologically-safe learning spaces, and the preparation of informed future physicians. Limitations experienced thus far are lack of expertise expressed by faculty and time constraints.
Feasibility and transferability	The DEI-AR TA program is supported by institutional funds which are utilized to compensate student TAs for their efforts. While the feasibility and transferability of the program itself is straightforward and encouraged, accessing supportive funding could present as a barrier to some.
References	Diaz T, Navarro JR, Chen EH. An Institutional Approach to Fostering Inclusion and Addressing Racial Bias: Implications for Diversity in Academic Medicine. Teach Learn Med. 2020;32(1):110-116. doi:10.1080/10401334.2019.1670665Paradies Y, Ben J, Denson N, et al. Racism as a Determinant of Health: A Systematic Review and Meta-Analysis. PLoS One. 2015;10(9):e0138511. Published 2015 Sep 23. doi:10.1371/journal.pone.0138511Sharma M, Kuper A. The elephant in the room: talking race in medical education. Adv Health Sci Educ Theory Pract. 2017;22(3):761-764. doi:10.1007/s10459-016-9732-3Solomon S, Atalay A, Osman N. Diversity Is Not

	Enough: Advancing a Framework for Antiracism in Medical Education. Academic Medicine. 2021; 96 (11): 1513-1517. doi: 10.1097/ACM.0000000000004251.
Submitter First Name	Michael
Submitter Last Name	Allen
Submission Title	More Than Just a Number: The Use of Quantitative and Qualitative Objective Structured Clinical Examination (OSCE) Data to Predict Future Student Performance
Research Statement/Research Question	Seebackground.
Background and/or theoretical framework and relevance of the study	Every year students at Einstein take a pre-clinical OSCE and every year there is a group of students who score below the expected level of competency. Some of these students go on to excel in their clinical experiences while others continue to struggle. This study aims to evaluate how standardized patient's (SP) qualitative comments can supplement existing quantitative markers, early on in student's training, to accurately predict which students are at future risk of struggling with clinical skills.
Design and methods	SP comments from 1080 students (100% participation) from 6 years of OSCEs at Einstein were analyzed. The natural language processing technique of sentiment analysis was used to examine the word typology and the valency of SP comments. Student's clinical performance (clinical grades), were analyzed using latent profile analysis (LPA). A logistic regression was used to analyze the relationship between failing the pre-clinical OSCE and the resulting group membership from the LPA.
Results of data collection and analysis	The LPA returned five statistically different profiles: high performers (1 group of mostly Honors), middle-range performing students (2 groups, of mostly High Passes), and low-performing students (two groups, 2 or more Passes). Students who failed the pre-clinical OSCE were 4.85 times more likely to belong to the two lowest performing profiles($p < 0.01$, CI 1.28-14.75). There was no statistically significant differences in word typology between these five profiles.
Limitations	The dictionaries used in this sentiment analysis were not originally designed to analyze performance based text and therefore not able to detect meaningful differences in our data.
Conclusions	Students who preform below the expected level of competency are "at risk" of continuing to struggle clinically. Next steps include using the codebook created by the authors' qualitative analysis of SP comments to reexamine whether differences in comments between high and low preforming students can be found, with results expected before the NEGEA 2022.
References	Blatt, B., Plack, M., Simmens, S., Lopreiato, J., Berg, K., Klevan, J., & Lewis, K. (2016). Do Standardized Patients Have Concerns About Students Not Captured by Traditional Assessment Forms? Teach Learn Med, 28(4), 395-405. doi:10.1080/10401334.2016.1176573Terry, R., Hing, W., Orr, R., & Milne, N. (2017). Do coursework summative assessments predict clinical performance? A systematic review. BMC Med Educ, 17(1), 40. doi:10.1186/s12909-017-0878-3Turner, K., Bell,

	M., Bays, L., Lau, C., Lai, C., Kendzerska, T., . . . Davies, R. (2014). Correlation between Global Rating Scale and Specific Checklist Scores for Professional Behaviour of Physical Therapy Students in Practical Examinations. Education Research International, 2014, 1-6. doi:10.1155/2014/219512Williams, R. G. (2004). Have standardized patient examinations stood the test of time and experience? Teach Learn Med, 16(2), 215-222. doi:10.1207/s15328015tlm1602_16
Submitter First Name	Joshua
Submitter Last Name	Anil
Submission Title	Systematic Evaluation of Humanities and Arts Integration in Undergraduate Medical Education
Research Statement/Research Question	How are medical humanities integrated into undergraduate medical education (UME)?
Background and/or theoretical framework and relevance of the study	Education in the medical humanities improves clinical judgment (1), enhances professionalism (2), facilitates appreciation for the entire patient (3), and reduces physician burnout (4-5). Existing literature on arts and humanities offerings targeting medical students has focused on content and participant evaluations, but descriptions of the infrastructures in UME supporting medical humanities programing are lacking (6-8).
Design and methods	An 18-point Humanities and Arts Programming Score (HARPS) was developed to evaluate institutions in 8 categories: Infrastructure, Curricular Opportunities, Extracurricular Programming, Faculty Engagement, Staff Support, Longitudinal Learning Tracks, Student Groups, and Research. This scale was used to evaluate the top-30 ranked United States medical schools as determined by US News and World Report's (USWNR) Medical School Research Rankings. Public-facing, online information was independently collected by two investigators and final scoring was determined by three individuals.
Results of data collection and analysis	Mean total HARP score was 11.26, with a median score of 12, a standard deviation of 4.32 and a score range of 3-17. Three (9.6%) institutions scored between 0-4 points, nine (29.0%) between 5-9, eleven (35.5%) between 10-14, and eight (25.8%) between 15-18. Neither USWNR ranking nor private/public institution status were correlated to total score ($p = 0.121$, $p = 0.739$, simple linear regressions)
Limitations	Data were derived from medical school websites, with the schools selected as a convenience sample from the USNWR, which may not be fully representative US medical schools. Further, the quality or impact of what was available or provided by each institution was not assessed.
Conclusions	The infrastructures for medical humanities at US medical schools are highly variable, highlighting the need for increased institutional commitment and investments to foster the integration of the arts and humanities into UME.
References	1. Macnaughton J. The humanities in medical education: context, outcomes and structures. Med Humanit. 2000;26(1):23-30. doi:10.1136/mh.26.1.23 2: Doukas DJ, McCullough LB, Wear S; Project to Rebalance and Integrate Medical Education (PRIME) Investigators. Perspective: Medical education in medical ethics and

	humanities as the foundation for developing medical professionalism. Acad Med. 2012;87(3):334-341. doi:10.1097/ACM.0b013e318244728c 3: Quintero GA. Medical education and the healthcare system--why does the curriculum need to be reformed?. BMC Med. 2014;12:213. Published 2014 Nov 12. doi:10.1186/s12916-014-0213-3 4: Meakin R. Editorial: philosophy in the undergraduate medical curriculum – beyond medical ethics. Med Humanit. 2004;30(1):53. https://doi.org/10.1136/jmh.2004.000148. 5. Agarwal A, Wong S, Sarfaty S, Devaiah A, Hirsch AE. Elective courses for medical students during the preclinical curriculum: a systematic review and evaluation. Med Educ Online. 2015;20:26615. Published 2015 May 11. doi:10.3402/meo.v20.26615 6. Moniz T, Golafshani M, Gaspar CM, et al. How Are the Arts and Humanities Used in Medical Education? Results of a Scoping Review. Acad Med. 2021;96(8):1213-1222. doi:10.1097/ACM.0000000000004118 7. Moniz T, Golafshani M, Gaspar CM, et al. The prism model: advancing a theory of practice for arts and humanities in medical education. Perspect Med Educ. 2021;10(4):207-214. doi:10.1007/s40037-021-00661-0 8. Howick J, Zhao L, McKaig B, et al. Do medical schools teach medical humanities? Review of curricula in the United States, Canada and the United Kingdom. J Eval Clin Pract. 2022;28(1):86-92. doi:10.1111/jep.13589
Submitter First Name	Julian
Submitter Last Name	Azar
Submission Title	The Impact of Professional Background of Medical School Admissions Interviewers on Applicants' MMI Score
Research Statement/Research Question	Do MMI scores for medical school applicants vary based on the professional background of the interviewer?
Background and/or theoretical framework and relevance of the study	The Multiple Mini Interview (MMI) is an interview format first developed in 2001 aimed at providing a more standardized and reliable form of interviewing medical school applicants. Although shown to have high inter-rater reliability ranging from 0.58 to 0.77 in various studies [1,2,3], little research has been conducted investigating differences in MMI scoring based on interviewers' backgrounds. We aim to obtain a better understanding of factors affecting interviewer ratings, specifically the professional background of the interviewer.
Design and methods	15,763 interviewer-scoring values were collected from ZSOM's database from 2019 through 2022 and were organized into 5 groups. The physician interviewers were divided into 3 groups: Medical (N&#3f 5616 responses), Mixed (N&#3f 2392 responses) and Surgical (N&#3f 1870 responses). The non-physician interviewers were medical students (N&#3f 2170 responses) and affiliate non-physician administrative staff and PhD faculty of ZSOM, health system and undergraduate university (N&#3f3715 responses). Median group differences were evaluated using non-parametric tests.
Results of data	Median MMI scores were significantly different among the three groups ($p < 0.001$). Post-hoc analysis revealed that the Medicine group scores applicants higher when compared to all groups except the student group (all significant p-values <.001).

collection and analysis	There was also a significant difference between the student group and the surgery, mixed, and non-physician groups (all p's< 0.05).
Limitations	The data is limited to one institution and interviews were done either in person (2019-2020) or virtually (2021-2022) due to the COVID-19 pandemic. This preliminary analysis does not account for the number of interviews a single interviewer performed, however a more comprehensive model accounting for this will be available at the time of the conference.
Conclusions	The professional background of the interviewer is an important factor to consider when examining an applicant's MMI scores.
References	1. Kim KJ, Nam KS, Kwon BS. The utility of multiple mini-interviews: experience of a medical school. Korean J Med Educ. 2017 Mar;29(1):7-14. doi: 10.3946/kjme.2017.48. Epub 2017 Feb 28. PMID: 28264549; PMCID: PMC5339444. 2. Ziv, A., Rubin, O., Moshinsky, A., Gafni, N., Kotler, M., Dagan, Y., Lichtenberg, D., Mekori, Y.A. and Mittelman, M. (2008), MOR: a simulation-based assessment centre for evaluating the personal and interpersonal qualities of medical school candidates. Medical Education, 42: 991-998. https://doi.org/10.1111/j.1365-2923.2008.03161.x 3. Jerant, A., Henderson, M.C., Griffin, E. et al. Reliability of Multiple Mini-Interviews and traditional interviews within and between institutions: a study of five California medical schools. BMC Med Educ 17, 190 (2017). https://doi.org/10.1186/s12909-017-1030-0
Submitter First Name	Raiel
Submitter Last Name	Barlow
Submission Title	The Use of the AAMC Core Personal Competencies in Medical School Admissions Procedures
Research Statement/Research Question	This project explored how medical schools assess applicants for core personal competencies in the admission process.
Background and/or theoretical framework and relevance of the study	The Association of American Medical Colleges' (AAMC) list of 15 core competencies for matriculating medical students includes 9 focused on interpersonal skills shown to correlate with improved patient outcomes.1,2,3 However there is little research on if and how medical schools measure these competencies during admissions processes. We sought to identify current practices in assessing AAMC competencies during admissions processes, including use of the Multiple Mini-Interview (MMI). This study was completed with funding from an NEGEA Collaborative Research Grant Award.
Design and methods	A sequential exploratory mixed-methods design was used. Case studies and focus groups gathered qualitative information using a grounded theory framework. These elements informed the development of a survey distributed to allopathic US LCME-accredited medical schools.
Results of data collection and analysis	In the case studies, all three institutions' assessments included the AAMC competencies and used the MMI. Focus groups (13 participants) revealed that institutional mission guided competency assessment, and methods varied widely among institutions. The survey (28 responses; 19% response rate) highlighted

	variability in use and assessment of competencies. Most competencies were addressed during the interview stage, and both the interview and after interview stages typically used rating scales. Service orientation was the most frequently assessed competency, and the only competency more commonly assessed prior to, rather than at, the interview. Respondents more strongly agreed with the importance of assessing the competencies compared to confidence in their ability to assess the competencies.
Limitations	Low survey participation limited generalizability. Vast variability between schools prevented identification of common or best practices.
Conclusions	There was little uniformity amongst medical schools in their assessment of the AAMC competencies, as institutional mission determined which competencies were assessed. Some competencies were assessed more often than others.
References	1. Koenig TW, Parrish K, Terregino CA, Williams JP, Dunleavy DM, Volsch, JM. Core Personal competencies important to entering students' success in medical school: What are they and how could they be assessed early in the admissions process? Acad Med. 2013;88(5):603-613. 2. Kirch DG, Gusic ME, Ast C. Undergraduate medical education and the foundation of physician professionalism. JAMA. 2015;313(18)1797-1798. 3. Schreurs S, Cleutjens KB, Muijtjens AMM, Cleland J, oude Egbrink MGA. Selection into medicine: the predictive validity of an outcome-based procedure. BMC Med Educ. 2018;18:214.
Submitter First Name	Michael
Submitter Last Name	Barone
Submission Title	It takes a village: A collaborative approach to advance clinical reasoning assessment.
Objective or purpose of innovation	Recognizing the complexity of assessment in medical education, NBME created a Creative Community to spark collaborative innovation. The goal of the "OSCE for Clinical Reasoning Creative Community" is to co-create assessment solutions, drawing on the insight of NBME staff, medical education faculty and staff, and learners.
Background and/or theoretical framework and importance of the field	Medical educators identify clinical reasoning as a priority skill and view OSCEs as one of the most effective ways to develop skills related to clinical reasoning. Educators identify multiple barriers, including limited funds for a program of assessment, limited staff and faculty time to implement new procedures, and limited resources to analyze and visualize OSCE performance data.
Innovation design	NBME is partnering with 10 diverse U.S. medical schools to enhance the formative feedback given to learners and coaches on clinical reasoning skills using school-based OSCEs. Working closely with NBME staff, faculty are using a Evidence-Centered Design to develop assessment solutions that will support the intended learner inferences.
Evaluation Plan:	Our goal is to prioritize and further develop the most promising solution emerging from the first 6 months of the Community's work, with a goal of piloting the assessments at Creative Community schools.

methods and measures	
Outcomes	Through small-scale pilots, a validity argument will be developed for the prioritized solution using Kane's framework. Through trust building and data sharing within our Creative Community, we aim to provide useful feedback to learners and programs.
Innovation's strengths and limitations	This co-creation approach with NBME and medical school faculty provides a unique combination of skills-sets, perspectives and resources to address an assessment need. Although elements of this approach can guide local assessment design, this approach may be more suitable to highly complex challenges.
Feasibility and transferability	Diverse schools were selected for the Creative Community to ensure a range of learning environments, and faculty and learner voices. After demonstrating feasibility and generalizability of concepts across 10 Creative Community schools, we will assess scale potential.
References	1. Connor DM, Durning SJ, Rencic JJ. Clinical Reasoning as a Core Competency. Acad Med. 2020 Aug;95(8):1166-1171.2. Daniel M, Rencic J, Durning SJ, Holmboe E, Santen SA, Lang V, Ratcliffe T, Gordon D, Heist B, Lubarsky S, Estrada CA, Ballard T, Artino AR Jr, Sergio Da Silva A, Cleary T, Stojan J, Gruppen LD. Clinical Reasoning Assessment Methods: A Scoping Review and Practical Guidance. Acad Med. 2019 Jun;94(6):902-912.3. Englander R, Holmboe E, Batalden P, Caron RM, Durham CF, Foster T, Ogrinc G, Ercan-Fang N, Batalden M. Coproducing Health Professions Education: A Prerequisite to Coproducing Health Care Services? Acad Med. 2020 Jul;95(7):1006-1013.4. Gordon D, Rencic JJ, Lang VJ, Thomas A, Young M, Durning SJ. Advancing the assessment of clinical reasoning across the health professions: Definitional and methodologic recommendations. Perspect Med Educ. 2022 Mar;11(2):108-114.5. John JT, Gowda D, Schlair S, Hojsak J, Milan F, Auerbach L. After the Discontinuation of Step 2 CS: A Collaborative Statement from the Directors of Clinical Skills Education (DOCS). Teach Learn Med. 2022 Mar 14:1-6.6. Wenger E. Communities of practice: Learning, meaning, and identity. Cambridge University Press, 1998.
Submitter First Name	Todd
Submitter Last Name	Bates
Submission Title	Implementation of a series of novel procedural, anatomy and radiology correlate sessions in the preclinical curriculum
Objective or purpose of innovation	We are implementing a novel procedural anatomy correlate session series within our preclinical curriculum. Each case-based session reviews relevant clinical anatomy, demonstrates provider approach to imaging, and introduces foundational procedural knowledge.
Background and/or theoretical framework and importance of the field	This project was developed in response to a disconnect between preclinical anatomy exam scores (consistently ≥90%) and post-Step 1 survey data where 34% of students reported feeling unprepared by preclinical anatomy curriculum for Step 1, as well as CQI and focus group data suggesting students desire increased pre-clinical opportunities to practice procedures and interpret radiological imaging.

Innovation design	Before each session, students completed a 10-question pre-quiz gauging understanding in three key areas: anatomy, radiology, and procedural knowledge. They then accessed targeted review materials in preparation for the in-person session. During each session, students rotated through stations reviewing relevant cadaveric anatomy and radiology with a clinical anatomist and a procedural skill (e.g., chest tube placement) with a physician.
Evaluation Plan: methods and measures	Outcomes will be evaluated using a cumulative post-course assessment combined with standard course evaluations for learner experience.
Outcomes	Students revisited relevant clinical anatomy, witnessed provider approaches to imaging, and were introduced to foundational procedural knowledge in a cadaveric-based lab.
Innovation's strengths and limitations	The project benefited from interdisciplinary coordination between faculty in the basic and clinical sciences and demonstrates the positive impact of applying anatomical concepts in clinical contexts, as well as the potential benefit of early exposure of medical students to specialties currently underrepresented in the pre-clinical curriculum. The single site and cohort limit generalizability of the project, while brief curricular time and scheduling conflicts limit the impact for students among sessions.
Feasibility and transferability	Our experience implementing a compact combined anatomy/radiology/procedure series suggests this a feasible, sustainable, and effective approach to preparing students for clinical settings when large scale curricular changes are not possible. We anticipate this to be highly transferable to other institutions facing similar limitations in curricular time.
References	Barry DS, Dent JM, Hankin M, et al. The Clinical Anatomy and Imaging Laboratory: Vertical Integration in the Preclerkship Curriculum. MedEdPORTAL. 2019;15:10824. Published 2019 May 15. doi:10.15766/mep_2374-8265.10824 Bass RZ, Morgan DE, Brooks WS. A Case of Pancreatic Cancer: Abdominal Anatomy Team-Based Learning Module for Medical Students. MedEdPORTAL. 2018;14:10700. Published 2018 Mar 29. doi:10.15766/mep_2374-8265.10700 Abrahams A, Pienaar L, Bugarith K, Gunston G, Badenhorst E. A foundational knowledge assessment tool to predict academic performance of medical students in first-year anatomy and physiology. Adv Physiol Educ. 2022;46(4):598-605. doi:10.1152/advan.00017.2022 Smith CF, Mathias HS. What impact does anatomy education have on clinical practice?. Clin Anat. 2011;24(1):113-119. doi:10.1002/ca.21065 Sbayeh A, Qaedi Choo MA, Quane KA, et al. Relevance of anatomy to medical education and clinical practice: perspectives of medical students, clinicians, and educators. Perspect Med Educ. 2016;5(6):338-346. doi:10.1007/s40037-016-0310-4 Sharma G, Aycart MA, Najjar PA, et al. A cadaveric procedural anatomy course enhances operative competence. J Surg Res. 2016;201(1):22-28. doi:10.1016/j.jss.2015.09.037 Zumwalt AC, Lufler RS, Monteiro J, Shaffer K. Building the body: active learning laboratories that emphasize practical aspects of anatomy and integration with radiology. Anat Sci Educ. 2010;3(3):134-140. doi:10.1002/ase.153

Submitter First Name	Miya
Submitter Last Name	Bernson-Leung
Submission Title	Designing for Effective Interactive Learning in Online Continuing Education: The Pediatric Stroke Champions Course
Objective or purpose of innovation	One-time, lecture-based continuing education courses are unlikely to foster the knowledge retention or individual and systemic practice change needed to improve outcomes for low-frequency/high-acuity disorders such as pediatric stroke. The "Pediatric Stroke Champions" course was designed to empower participants as "champions" at their home institutions through interactive, individualized education.
Background and/or theoretical framework and importance of the field	While the literature on CME/CPD effectiveness emphasizes interactivity, lecture remains prevalent. Doubts persist about the feasibility and acceptability of interactive learning online for both learners and faculty. Relevant frameworks include adult learning theory, project-based learning, the PICRAT model for technology integration, and Moore's framework for planning and assessing learning in continuing education activities.
Innovation design	"Pediatric Stroke Champions" used a flipped-classroom, blended online format. Prework included self-assessment, goalsetting, and identification of an educational or clinical project. The live workshop included two case-based sessions with audience response systems and expert discussants. A brief presentation on our institutional experience then set the stage for a panel discussion; otherwise, the workshop contained no didactic presentations. Matched faculty experts and co-learners provided consultation on participants' projects. Post-work included knowledge questions, reflection exercises, project updates, and ongoing faculty consultation.
Evaluation Plan: methods and measures	Moore's framework with quantitative and qualitative measures of participation, satisfaction, learning, and performance.
Outcomes	Engagement in discussion and audience response were robust. Comments praised the faculty's ability to foster discussion, learning from peers, and a level of interactivity comparable to in-person seminars. All participants would register for similarly structured future courses. Faculty also expressed enthusiastic approval.
Innovation's strengths and limitations	This course demonstrates successful implementation of multiple interactive learning strategies fostering knowledge dissemination and practice change. In particular, expert-facilitated project-based learning sessions achieved creative and amplifying/transforming functions of technology integration into continuing education.
Feasibility and transferability	Interactive, personalized, longitudinal continuing education is effective and feasible even in a virtual environment. Subject matter experts can effectively serve as discussion facilitators and project-based learning consultants rather than just lecturers.
References	AAMC. Academic CME/CPD in the United States and Canada: Results of the 2021 AAMC- SACME Harrison Survey. Washington, DC: AAMC; 2021.Bower EA, Girard DE, Wessel K, Becker TM, Choi D. Barriers to innovation in continuing medical education.

	J Contin Educ Health Prof. 2008;28(3):148-156.Kimmons R, Graham CR, West RE. The PICRAT Model for Technology Integration in Teacher Preparation. Contemporary Issues in Technology and Teacher Education. 20(1):176-198.Knowles M. What is Andragogy? In: Knowles M, ed. The Modern Practice of Adult Education: From Pedagogy to Andragogy. Prentice Hall Regents; 40-59:chap 4.McMahon GT. What do I need to learn today?--The evolution of CME. N Engl J Med. 2016;374(15):1403-1406.Moore DE, Chappell K, Sherman L, Vinayaga-Pavan M. A conceptual framework for planning and assessing learning in continuing education activities designed for clinicians in one profession and/or clinical teams. Medical Teacher. 2018;40(9):904-913. doi:10.1080/0142159x.2018.1483578Wakefield JG. Commitment to change: exploring its role in changing physician behavior through continuing education. J Contin Educ Health Prof. Fall 2004;24(4):197-204. doi:10.1002/chp.1340240403
Submitter First Name	Jeffrey
Submitter Last Name	Bird
Submission Title	Student perspectives on fairness, accuracy, and bias in the Medical Student Performance Evaluation (MSPE)
Research Statement/Research Question	This study examines the perspectives of fourth-year medical students regarding fairness, accuracy and bias in the MSPE.
Background and/or theoretical framework and relevance of the study	The Medical Student Performance Evaluation (MSPE) plays an important role in the residency selection process.(1) However, variation exists in MSPE format and content across institutions (2) and only faculty perspectives on its use have been reported.(3) To date, no study has elucidated the perspectives of fourth-year medical students on the MSPE.
Design and methods	Fourth-year medical students at two institutions completed a survey in April 2021 on perceptions of fairness, accuracy and bias overall and in each MSPE section using a 5-point Likert scale. Survey data were analyzed with descriptive statistics and Chi-square analysis. Qualitative content analysis of open-ended questions provided suggestions for improvements to the MSPE.
Results of data collection and analysis	51% (139/273) of students responded. 80% of responding students believed the MSPE to be fair, and 78% perceived it to be an accurate representation of medical student performance. About half of students (53%) endorsed the MSPE as valuable. 34% believed that the MSPE increases bias in the residency application process. Qualitative analysis yielded patterns in student perceptions of the MSPE including perceived bias in summative evaluations, generic nature of the document, and student misunderstanding of MSPE purpose. Students appreciated opportunities to provide written contributions to the MSPE and early introduction to its purpose by their medical schools.
Limitations	Although two institutions were represented, our results may not be generalizable to all schools. Additionally, the survey was administered after the residency match, and results may have been affected by student satisfaction with results.

Conclusions	Although most medical student respondents believe the MSPE fairly and accurately represents their medical school performance, some find it generic and lacking value. Students perceive bias within the MSPE largely stemming from clerkship grading, but praise opportunities to share diverse experiences in the MSPE.
References	1. Katzung KG, Ankel F, Clark M, et al. What Do Program Directors Look for in an Applicant? J Emerg Med. 2019;56(5):e95-e101.2. Boysen Osborn M, Mattson J, Yanuck J, et al. Ranking Practice Variability in the Medical Student Performance Evaluation: So Bad, It's "Good". Acad Med. 2016;91(11):1540-15453. Brenner JM, Arayssi T, Conigliaro RL, Friedman K. The Revised Medical School Performance Evaluation: Does It Meet the Needs of Its Readers?. J Grad Med Educ. 2019;11(4):475-478. doi:10.4300/JGME-D-19-00089.1
Submitter First Name	Kirsten
Submitter Last Name	Brown
Submission Title	Faculty and Student Perceptions of Unauthorized Collaborations: Student or System Failure?
Research Statement/Research Question	The purpose of this study was to examine faculty and student perceptions of and motivations for unauthorized collaboration.
Background and/or theoretical framework and relevance of the study	Unauthorized assistance and material sharing are a reported problem among medical students(1-4). While many faculty view such sharing as dishonest, students do not always perceive these behaviors as problematic(5-6). With the trend toward small-group and team-based learning and the proliferation of resource sharing and online study aids, collaboration may be a norm.
Design and methods	We conducted scenario-prompted semi-structured interviews with preclinical faculty and students at three institutions. Participants were asked to reflect on three scenarios of unauthorized collaborations and discuss their perception of student motivation and the influence of personal or environmental factors. We performed inductive thematic analysis of the transcripts using open and axial coding followed by abstraction and synthesis of themes.
Results of data collection and analysis	We interviewed 21 faculty and 16 students. Perceptions varied among faculty and among students, but not as much between faculty and students. Both groups identified the same three areas of tension/themes: faculty/curriculum goals vs student goals, behaviORAL traits vs behaviORAL states, and student relationships with their peer group vs their relationship with the education system. Student behaviors were perceived to be influenced by their environment and motivated by altruistic tendencies. Participant-identified mitigation strategies included cultivating trust, devising environmental interventions, and educating students about acceptable/unacceptable behaviors.
Limitations	Findings may differ in schools where there is pressure related to student rankings, and in the clinical environment where expectations for collaboration around patient care are more explicit. Mitigation strategies may not be practical and warrant further investigation.

Conclusions	Given the various tensions and positive motivations behind unauthorized collaborations, it may be important for institutions to explicitly prepare students to make thoughtful decisions in the face of competing priorities in addition to developing mitigation strategies that address the environment and its interrelationship with students.
References	1. Hejri SM, Zendehdel K, Asghari F, Fotouhi A, Rashidian A. Academic disintegrity among medical students: a randomised response technique study. Med Educ. 2013;47:144-153.2. Mak-van der Vossen M, van Mook W, van der Burgt S, Kors JH, Ket JCF, Croiset G, Kusurkar R. Descriptors for unprofessional behaviours of medical students: a systematic review and categorisation. BMC Med Educ. 2017;17:164.3. Royal K, Hedgpeth M, Mulkey J, Fremer J. The 10 most wanted test cheaters in medical education. Med Educ. 2016;50:1241-1244.4. Tonkin AL. "Lifting the carpet" on cheating in medical school exams. BMJ. 2015;351:h4014.5. Drye SL, Lomo-David E, Snyder LG. Normal deviance: an analysis of university policies and student perceptions of academic dishonesty. SJBE. 2018;10:71-83.6. Harrison D, Patch A, McNally D, Harris L. Student and faculty perceptions of study helper websites: a new practice in collaborative cheating. J Acad Ethics. 2021;19(4):483-500.
Submitter First Name	Jan
Submitter Last Name	Carney
Submission Title	Sustaining Community Engagement in Medical Education: 20 Years of Integrating Public Health in Medical Education
Objective or purpose of innovation	Design sustained community-academic partnerships to teach public health.
Background and/or theoretical framework and importance of the field	This longitudinal community-engagement model emphasizes that projects are determined directly by community needs; student groups respond to these needs in a required curricular framework.
Innovation design	First implemented in 2004, Public Health Projects is a course in which community organizations submit proposals for projects to improve health. Students respond to identified health needs in a structured semester-long framework. Course objectives include learning through community actions, applying public health research methods, communicating with diverse communities, and team collaboration. Projects are presented in an annual poster session and community celebration.
Evaluation Plan: methods and measures	We tracked student, faculty, and community mentor assessment of student group process and project quality; scholarly submissions and qualitative assessments from participating community organizations were captured. Community feedback about student group performance, engagement, reasons for participation, and project uses were gathered in electronic surveys.
Outcomes	Sixteen projects were completed each year since 2004. Community organizations cite positive prior experience with students; influencing the training of future health

	professionals; encouragement from peers; connections with the college of medicine and university; and needing additional help as reasons for participation. Organizations cite a variety of project benefits and impacts including public education, advocacy, internal planning, and enhanced collaboration with community partners.
Innovation's strengths and limitations	Our community-academic partnerships have produced sustained community engagement and benefits to community organizations while students conduct community-initiated projects. Exploring reasons for participation and ongoing project uses provide a longitudinal view of community health needs, including health care access, public health, and social determinants of health. Our experience demonstrates that documented community benefit is essential for long-term engagement. Recent research reinforces the need to teach and evaluate public/population health in medical education, as well as citing the need for meaningful community engagement for advancing health equity.
Feasibility and transferability	The elements of our model can be replicated by other medical schools.
References	Teaching Public and Population Health in Medical Education: An Evaluation Framework - PubMed (nih.gov)Public Health Is Essential: COVID-19's Learnable Moment for Medical Education - PubMed (nih.gov)Community-academic partnerships: how can communities benefit? - PubMed (nih.gov)Medical education for a healthier population: reflections on the Flexner Report from a public health perspective - PubMed (nih.gov)Community-academic partnerships: a "community-first" model to teach public health - PubMed (nih.gov) Assessing Meaningful Community Engagement: A Conceptual Model to Advance Health Equity through Transformed Systems for Health - National Academy of Medicine (nam.edu)
Submitter First Name	Alex
Submitter Last Name	Choi
Submission Title	A Comparison between In-Person and Virtual OSCE on Advanced Communication Skills for Senior Medical Students
Research Statement/Research Question	Is a virtual format as effective as in-person format in assessing communication skills during an objective structured clinical examination (OSCE) on advanced communication skills for medical students? Do students feel emotionally supported during a virtual OSCE involving intense emotions?
Background and/or theoretical framework and relevance of the study	Medical schools rapidly adopted virtual learning in response to the COVID-19 pandemic, including virtual OSCEs. There are no studies that have compared virtual to in-person OSCEs in terms of effectiveness, satisfaction, and sense of emotional support for medical students.
Design and methods	The investigators updated a previously conducted formative advanced communication skills OSCE from in-person to virtual format. Student performances were assessed via two objective checklists: Communication Behavior Checklist (CBC) for interview content and modified Master Interview Rating Scale (mMIRS) for

	interview process. The OSCE was followed by a faculty-led debrief and quantitative survey.
Results of data collection and analysis	Eighty-three students participated in the virtual OSCE. CBC scores were lower in the virtual OSCE compared to in-person ($p< 0.05$), while mMIRS scores were similar. Survey results showed no difference between virtual and in-person OSCE in terms of educational value, whether the OSCE would change the way participants talk to patients, and preparedness to have serious conversations with patients. All students somewhat or strongly agreed with feeling emotionally supported during the virtual OSCE.
Limitations	The students are from a single-institution and from difference cohorts, further complicated by the unknown effect of their pandemic adjustment to education. Second, our OSCE focuses on communication skills, so results should not be extrapolated to OSCEs requiring hands-on assessments or interventions.
Conclusions	The virtual format was shown to be an effective alternative for an in-person advanced communication skills OSCE for medical students. Future virtual iterations should include ensuring adequate instruction on interview content.
References	N/A
Submitter First Name	Marguerite
Submitter Last Name	Costich
Submission Title	Creation of a Novel, Multimodal Competency-Based Telemedicine Curriculum for Pre-Clinical Students
Objective or purpose of innovation	Develop a multimodal competency-based curriculum in telemedicine for pre-clinical medical students
Background and/or theoretical framework and importance of the field	The American Association of Medical Colleges (AAMC) created telemedicine competencies to address the emergence of telemedicine as integral to clinical medicine and the urgent need to create additional opportunities for medical student entrustment. Curricula and assessments are needed for these competencies.
Innovation design	A multimodal competency-based curriculum was developed to provide pre-clinical medical students with the knowledge and skills needed to perform a telemedicine encounter. Constructivist learning theory was used as a conceptual framework and active learning modalities were emphasized. The curriculum included 1) an interactive asynchronous module highlighting the six AAMC competency domains and 2) a formative skills workshop featuring pediatric and adult simulated encounters with standardized patients (SPs) and immediate structured debriefing and feedback with SPs and faculty facilitators, utilizing a newly developed work based assessment (WBA).
Evaluation Plan: methods and measures	Faculty facilitators were invited to participate in semi-structured interviews regarding perceptions of the curriculum, telemedicine, and students' skills. Responses were coded by two separate coders and analyzed via a thematic

	framework. Surveys of students using retrospective pre-post methodology is currently underway.
Outcomes	Qualitative themes that emerged from faculty facilitator interviews included the role and benefits of telemedicine, essential skills for students to learn within telemedicine, and perceptions of the curriculum. Initial survey findings indicate substantial increase in knowledge and skills following participation in telemedicine curriculum and overall general satisfaction.
Innovation's strengths and limitations	This curriculum uses a competency-based approach to introduce telemedicine to pre-clinical students using both asynchronous and synchronous modalities and offers opportunities for structured, in-the-moment feedback utilizing a WBA. Faculty interviews and student survey results will identify areas for improvement in training content and structure.
Feasibility and transferability	The curriculum has been incorporated into the pre-clinical skills course demonstrating feasibility. Development of the online module and creation of SP guides allow for transferability to other institutions.
References	1. AAMC. Telehealth Competencies Across the Learning Continuum. AAMC New and Emerging Areas in Medicine Series. Washington, DC: AAMC; 2021.
Submitter First Name	Sneha
Submitter Last Name	Daya
Submission Title	Development of a Scorecard to Improve Clinical Learning Environments
Objective or purpose of innovation	Standardize a process for evaluation of clinical learning environments (CLEs) to drive improvement initiatives longitudinally.
Background and/or theoretical framework and importance of the field	CLEs traverse healthcare delivery and health professions education, making shared responsibility for evaluation and improvement challenging due to separate governance and accreditation structures and lack of standardized approaches to CLE quality assessment [1]. Data collection about the experience and outcomes of learners, faculty, staff and patients typically occurs in silos, as do process improvement initiatives.
Innovation design	We developed a "CLE Scorecard" with four domains: 1) diversity, equity, inclusion; 2) interprofessional collaboration and teamwork; 3) alignment of health system and education goals; 4) continuous improvement of individuals, teams, and systems [2]. We mapped questionnaire items from routinely administered surveys among learners, faculty, staff and patients (clerkship evaluations, ACGME surveys, staff engagement surveys, etc.) to these domains, collating data into one scorecard with corresponding benchmarks when available. We iteratively improved upon the scorecard with feedback from our internal and external advisory board members, representing different backgrounds, professions and institutions. We created individualized scorecards for Pediatrics and OB/GYN, disseminating to leadership (departmental, educational, health systems) so they could meet to review and plan CLE improvement initiatives.

Evaluation Plan: methods and measures	We will evaluate survey data and qualitative feedback from stakeholders about scorecard use and experience. We will analyze the impact of CLE improvement initiatives on scores over time.
Outcomes	The scorecard was well-received by preliminary reviewers, who suggested it is a useful, comprehensive and powerful tool to inspire CLE quality improvement work.
Innovation's strengths and limitations	The scorecard appeared easy to interpret with planning of improvement initiatives immediately following review. Obtaining data from survey sources remains a challenge because it is rarely centralized.
Feasibility and transferability	We are currently piloting this scorecard in other departments and institutions to examine its feasibility, adaptability and usability in distinct contexts. We are exploring electronic platforms to easily monitor longitudinal data from scorecards.
References	[1] Irby D. Improving Environments for Learning in the Health Professions. Conference Proceedings. New York, NY Josiah Macy Jr. Foundation; 2018.[2] van Schaik SM, Reeves SA, Headrick LA. Exemplary Learning Environments for the Health Professions: A Vision. Acad Med. 2019; 94:975
Submitter First Name	Horace
Submitter Last Name	DeLisser
Submission Title	Spirituality and Health Summer Internship Program
Objective or purpose of innovation	To provide an immersive experience in spirituality education for medical students modeled on clinical pastoral education (CPE).
Background and/or theoretical framework and importance of the field	Despite the impacts of spirituality on patient care, medical schools fail to provide rigorous opportunities for students to explore the intersections of spirituality and health.
Innovation design	Grounded in the pedagogy of CPE, the Spirituality and Health Summer Internship Program (SH-SIP) is a six-week summer immersion experience after the first year at the Perelman School of Medicine that promotes professional development and clinically relevant skills and knowledge pertinent to physician and patient spirituality. Taught by a chaplain educator, and centered around reflection on daily unstructured inpatient visitations, the internship also includes didactics, communications skills training, mindfulness meditation, chaplain shadowing, analysis of literature on spirituality and health and interfaith field trips.
Evaluation Plan: methods and measures	Participants completed pre- and post-program surveys with Likert-style questions and options for free text comments/explanations assessing comfort or knowledge related to program objectives and the internship's educational effectiveness. Data analysis involved quantitative and qualitative approaches.
Outcomes	Twenty-eight students participated in the five offerings of the internship from 2016 to 2021. On a 5-point Likert-like scale (1= poor, 5= excellent), students strongly

	valued the internship for its educational value (mean = 4.7), indicating they would recommend it to other students (mean = 4.48). Students reported significant increases in their awareness of how spirituality influences their life (p=0.013); their knowledge of the role of spirituality in the lives of healthcare providers (p< 0.0001); their knowledge of the potential impact of spirituality on the patient experience (p< 0.0001); and the degree of their comfort in talking to patients about spirituality (p< 0.0001).
Innovation's strengths and limitations	The SH-SIP provides a potentially transformative experience for medical students, but which requires significant student engagement in the experience.
Feasibility and transferability	A growing number of CPE educators are available to deliver CPE-based spirituality training to medical students.
References	1. Paal P, Helo Y, Frick E. Spiritual Care Training Provided to Healthcare Professionals: A Systematic Review. J Pastoral Care Counsel. 2015 Mar;69(1):19-30. doi:10.1177/15423050155729552. Wenham J, Best M, Kissane DW. Systematic review of medical education on spirituality. Internal Medicine Journal. 2021;51:1781–1790. doi: 10.1111/imj.154213. Crozier D, Greene A, Schleicher M, Goldfarb J. Teaching spirituality to medical students: a systematic review. J Health Care Chaplain. 2022 Jul-Sep;28(3):378-399. doi:10.1080/08854726.2021.19163324. Hathaway DB, de Oliveira E Oliveira FHA, Mirhom M, Moreira-Almeida A, Fung WLA, Peteet JR. Teaching Spiritual and Religious Competencies to Psychiatry Residents: A Scoping and Systematic Review. Acad Med. 2022 Feb 1;97(2):300-310. doi:10.1097/ACM.00000000000041675. Timmins F, Caldeira S, Murphy M, Pujol N, Sheaf G, Weathers E, Whelan J, Flanagan B. The Role of the Healthcare Chaplain: A Literature Review. J Health Care Chaplain. 2018 Jul-Sep;24(3):87-106. doi:10.1080/08854726.2017.1338048
Submitter First Name	David
Submitter Last Name	Dorfman
Submission Title	Integrating Planetary Health Into the Preclinical Medical School Curriculum: Implementing a Lesson on Environmental Exposures
Objective or purpose of innovation	To introduce planetary health and provide an approach to taking an exposure history
Background and/or theoretical framework and importance of the field	Though medical schools and professional organizations have recognized the health impact of environmental changes and the need to educate trainees on planetary health, formal curriculum is lacking. We implemented a required session into a first year clinical skills course to teach students to: (1) recognize how living and working spaces can lead to injury and illness, (2) take an exposure history, and (3) understand the importance of physician advocacy.
Innovation design	Students were assigned pre-session readings and then engaged in a 1-hour guided small group discussion with trained faculty concerning environmental exposures. Using clinical vignettes, students explored four cases using a structured interview

	guide. They received practical advice for taking an exposure history while exploring potential diagnoses, obtaining additional history, counseling, and making connections to local resources.
Evaluation Plan: methods and measures	An optional pre- and post- survey (Qualtrics) was distributed to all 144 students. Surveys included a knowledge assessment, Likert scale confidence assessment, and qualitative feedback section.
Outcomes	There were 100 pre-assessment (69%) and 52 post-assessment (36%) respondents. For baseline knowledge, pre-assessment respondents achieved 39.88% correct and 28.64% incorrect, with 31.48% selecting "Don't Know". This improved to 48.04%, 33.05%, and 18.91%, respectively. For confidence in related knowledge areas, pre-assessment confidence was 50.85% and improved to 73.05%. Qualitative feedback for the session was positive, with requests for additional planetary health material in later courses to reinforce knowledge. Students also requested clarification on how to utilize local/national resources when helping patients.
Innovation's strengths and limitations	The curriculum used a multifaceted approach to introduce the topic of planetary health and connect it to an existing clinical skills course. It can be applied to learners at various levels of training. Limitations include availability of local resources and faculty to teach the content.
Feasibility and transferability	Cases and guides are readily transferable and reproducible.
References	1. Agency for Toxic Substances and Disease Registry [Internet]. Taking an Exposure History; c2015-2022 [updated 2017 Jun 5; cited 2022 Nov 1]. ATSDR Environmental Health and Medical Education. Available from: https://www.atsdr.cdc.gov/csem/exposure-history/cover-page.html2. Brown J. Haz-Map. c2022 [cited 2022 Nov 1]. Available from: https://www.haz-map.com/3. Chey H, Buchanan S. Toxins in everyday life. Prim Care. 2008 Dec;35(4):707-27. doi: 10.1016/j.pop.2008.07.001. PMID: 18928826.4. Marshall L, Weir E, Abelsohn A, Sanborn MD. Identifying and managing adverse environmental health effects: 1. Taking an exposure history. CMAJ. 2002 Apr 16;166(8):1049-55. PMID: 12002983; PMCID: PMC100881.5. Myers SS, Pivor JI, Saraiva AM. The São Paulo Declaration on Planetary Health. Lancet. 2021 Oct 9;398(10308):1299. doi: 10.1016/S0140-6736(21)02181-4. Epub 2021 Oct 5. Erratum in: Lancet. 2022 Jan 29;399(10323):436. PMID: 34624245; PMCID: PMC8492019.
Submitter First Name	William
Submitter Last Name	Eidtson
Submission Title	Efficacy of a preclinical learning science test-taking skills course on exam performance
Objective or purpose of innovation	How effective is test-taking skills instruction in improving student performance on standardized assessments?
Background and/or	Medical school curricula focus on training medical students in the basic sciences, clinical skills, and professional competencies necessary to practice as a physician.

theoretical framework and importance of the field	Many studies demonstrate instructional approaches that effectively improve medical learners' acquisition of biomedical and clinical knowledge(1). It is notable that, despite the importance of successful performance on standardized medical examinations for medical learners, there is little work demonstrating the utility of formal instruction in test-taking skills(2,3).
Innovation design	We designed and implemented a mandatory 7-session course for a class of 84 medical students at the end of their second year. We provided formal instruction on general test preparation strategies, question archetypes, and methods for constructing and deconstructing board-style multiple-choice questions used in standardized medical examinations. Instructional approaches included lectures, large-group active discussion, and small-group exercises.
Evaluation Plan: methods and measures	A repeated measures-matched pairs design was used to evaluate the impact of the test-taking training on assessments measuring students' biomedical and clinical knowledge and understanding of test-taking strategies.
Outcomes	Preliminary analyses of the effectiveness of the test-taking instruction show a significant increase in students' foundational knowledge scores after the taking course ($p < .001$). Post-course increases in associated scores on the "test-taking skills" questions were also significant ($p < .01$). However, although the median USMLE Step 1 scores of participants were higher than the median scores of a matched comparison group, the differences did not reach statistical significance.
Innovation's strengths and limitations	Results are from a single school, limiting the generalization of results to the broader medical school community. Additional test-taking instruction and practice may be necessary to impact standardized exam performance.
Feasibility and transferability	Participation in exam preparation and formal test-taking instruction was associated with improved performance on assessments of both basic sciences knowledge and test-taking skills but did not statistically affect USMLE Step 1 performance.
References	[1] Hamdy, H., Prasad, K., Anderson, M. B., Scherpbier, A., Williams, R., Zwierstra, R., & Cuddihy, H. (2006). BEME systematic review: Predictive values of measurements obtained in medical schools and future performance in medical practice. Medical Teacher, 28(2), 103–116. https://doi.org/10.1080/01421590600622723[2] Guerrasio, J., Nogar, C., Rustici, M., Lay, C., & Corral, J. (2017). Study skills and test taking strategies for coaching medical learners based on identified areas of struggle. MedEdPORTAL, 10593. https://doi.org/10.15766/mep_2374-8265.10593[3] Schwartz, L. F., Lineberry, M., Park, Y. S., Kamin, C. S., & Hyderi, A. A. (2018). Development and evaluation of a student-initiated test preparation program for the usmle step 1 examination. Teaching and Learning in Medicine, 30(2), 193–201. https://doi.org/10.1080/10401334.2017.1386106
Submitter First Name	Nina
Submitter Last Name	Feinberg
Submission Title	Assessment of lesbian, gay, bisexual, transgender, and queer curricula in undergraduate medical education
Research Statement/Re	The aim of this study was to identify student perceptions of the inclusion of LGBTQ+ topics in the undergraduate medical curriculum (UME).

search Question	
Background and/or theoretical framework and relevance of the study	Lesbian, gay, bisexual, transgender, and queer (LGBTQ+) individuals are more likely to face disparities in healthcare compared to their heterosexual and/or cisgender counterparts (1). Medical schools must prepare future physicians to care for LGBTQ+ patients regardless of intended specialty to help address the unique health needs of this population.
Design and methods	An online survey was distributed to medical students at an U.S. allopathic medical college who had completed at least one year of the UME curriculum. The survey was distributed during September and October of 2022. Participants were asked about preclinical and clinical experiences with LGBTQ+ education.
Results of data collection and analysis	There was a total of 62 responses representing 16% of the total population of students surveyed. Of respondents, 42% identified as LGBTQ+ (N&#3f26) with 8% identifying as non-cisgender (N&#3f5). Of the core clerkships, family medicine (17/29), psychiatry (17/28) and emergency medicine (9/12) were most noted to have teaching on LGBTQ+ health. Most respondents indicated that both the preclinical (83%) and clinical (78%) curricula needed additional education, with similar values noted by both LGBTQ+ and non-LGBTQ+ respondents (p=0.28, p=0.69). Of note, most respondents indicated that LGBTQ+ health is relevant to their future careers.
Limitations	Limitations include a low response rate; however, the responses were equally distributed across class years.
Conclusions	This study demonstrates both an interest and a need for comprehensive LGBTQ+ education at the didactic and clinical levels. Although informal teaching sessions are present, they are not standardized across UME and often require initiative from students. Our data suggests that students, regardless of identity, require additional teaching in LGBTQ+ health particularly in the clerkship setting which may be achieved through both clinical and didactic teachings.
References	1. Clift JB, Kirby J. Health care access and perceptions of provider care among individuals in same-sex couples: findings from the Medical Expenditure Panel Survey (MEPS). J Homosex. 2012;59(6):839-50. doi: 10.1080/00918369.2012.694766. PMID: 22853183.
Submitter First Name	Justin
Submitter Last Name	Fong
Submission Title	Remediation and Reporting in the Pre-Clerkship Curriculum: How Allopathic Medical Schools Compare.
Research Statement/Research Question	We describe the status of school policies surrounding remediation, reporting, and grading during the pre-clerkship medical school curriculum.
Background and/or theoretical framework	The recent change of USMLE Step 1 to pass-fail reporting has reignited interest in pre-clerkship curricula, pass-fail grading, and remediation practices in medical school (1,2,3). While pass-fail grading has positively affected student wellness and diversity and inclusion initiatives (4,5,6), these grading practices have diminished the value of

and relevance of the study	preclinical grades for residency selection (7,8). With Step 1's three-digit score no longer available, determining students' scientific mastery within the current environment of pass-fail scores and institution-specific recording and remediation practices becomes more difficult.
Design and methods	Curricular or Assessment Deans from US medical schools completed a detailed survey with a Likert scale and open-ended items on the following general topics: description of preclinical curriculum, remedial actions taken when students do not meet curricular standards, and reporting and recording practices for these students.
Results of data collection and analysis	Forty percent (62/155) of invited participants completed the survey. Preliminary analysis indicates that most medical schools use reexamination to assess student readiness to continue in the curriculum. Most schools do not include first-time remediation on MSPE or transcript. There is significant variability in specific remediation, grading, and reporting practices across schools, including the types of learning support offered, the format of reexamination, and the result of multiple remediations.
Limitations	Survey results represent a subset of medical schools, so may not be generalizable. The survey focused on remediation and reporting and did not collect data on the larger context of instructional practices.
Conclusions	The lack of standardized practices may reduce the utility of preclinical grades and could increase unfair bias during the residency selection process (9). Future efforts might create a more transparent, standardized preclinical reporting system.
References	
	Justin
Submitter First Name	Fong
Submitter Last Name	Preclinical Medical Student Perceptions of Surgery: a Scoping Review
Submission Title	We sought to describe the current understanding of preclinical medical students' perceptions of the surgical clerkship, surgeons, and the field of surgery.
Research Statement/Research Question	Medical students enter clerkships with preconceived notions of the culture, attitudes, and behavior of surgeons and the field of surgery(1,2). These preconceived notions may contribute to student anxiety regarding surgery clerkship and ultimately influence career exploration(3,4). With the pervasive changes in the surgical workplace over the past two decades(5), we seek to understand the state of the literature regarding medical students' perceptions of surgeons, surgical clerkships, and the field of surgery.
Background and/or theoretical framework and relevance of the study	This scoping review followed the PRISMA (preferred reporting items for systematic reviews and meta-analysis) guidelines for scoping reviews. We include studies involving North American allopathic preclinical medical student perceptions of surgical education, surgery as a field of medicine, and surgeons as physicians.
Design and methods	The search identified 1976 articles published between 2002 and 2022. 1847 articles were excluded based on title and abstract screening. 125 articles received full text screening. A total of 29 articles were included in the analysis. The following themes and student perceptions were identified.

	--The surgical clerkship involves overwork and stress. --Surgery as a field has poor work-life balance. --Surgeons are well-respected and technically skilled. --Surgeons can be disinterested in educating students. --Surgeons can have poor relationships with colleagues and patients. --Preclinical exposure to surgeons is limited, but often results in improved perceptions.
Results of data collection and analysis	This scoping review does not include risk of bias assessments. Search parameters were limited to the US and Canada.
Limitations	The literature has well-characterized how medical students perceive surgery, surgeons, and surgical clerkships. The origins of these perceptions remain unclear and is an area of potential further research. Understanding the preconceived notions of preclinical students may lead to earlier interventions that could prevent negative stereotypes directed toward surgeons and surgery as a field.
Conclusions	1. Burney CP, Goldwag JL, Sorensen MJ, Crockett AO. Hopes, fears, and rumors: Medical students and the general surgery clerkship. Am J Surg. 2021 Oct;222(4):687-691. doi: 10.1016/j.amjsurg.2021.06.013. Epub 2021 Jun 26. PMID: 34238588.2. Acker R, Healy MG, Vanderkruik R, Petrusa E, McKinley SK, Phitayakorn R. Eyes of the Beholders: First-year medical students' perceptions of surgeons and the field of surgery. Am J Surg. 2022 Jun;223(6):1026-1032. doi: 10.1016/j.amjsurg.2021.10.019. Epub 2021 Oct 27. PMID: 34732276.3. McKinley SK, Sell NM, Saillant N, Coe TM, Lau T, Cooper CM, Haynes AB, Petrusa E, Phitayakorn R. Enhancing the Formal Preclinical Curriculum to Improve Medical Student Perception of Surgery. J Surg Educ. 2020 Jul-Aug;77(4):788-798. doi: 10.1016/j.jsurg.2020.02.009. Epub 2020 Mar 17. PMID: 32192888.4. Are C, Stoddard HA, Nelson KL, Huggett K, Carpenter L, Thompson JS. The influence of medical school on career choice: A longitudinal study of students' attitudes toward a career in general surgery. Am J Surg. 2018 Dec;216(6):1215-1222. doi: 10.1016/j.amjsurg.2018.10.036. Epub 2018 Oct 28. PMID: 30415928.5. Arnold MW, Patterson AF, Tang AS. Has implementation of the 80-hour work week made a career in surgery more appealing to medical students? Am J Surg. 2005 Feb;189(2):129-33. doi: 10.1016/j.amjsurg.2004.09.009. PMID: 15720978.
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Submitter First Name	William
Submitter Last Name	Fuller
Submission Title	Improving Validity of Narrative Assessment on the Internal Medicine Clerkship: An Approach Using Kane's Argument-Based Framework
Objective or purpose of innovation	To improve validity of narrative evaluations of medical students on the Internal Medicine clerkship.
Background and/or theoretical	Narrative evaluations of clinical performance can offer specific and actionable feedback, but are prone to bias. (1) These assessments are used in grading and residency matching. This contributes to poorer outcomes for students belonging to

framework and importance of the field	racialized groups underrepresented in medicine. (2) In this innovation, we seek to identify actionable gaps in narrative evaluations to improve validity and reduce bias.
Innovation design	We applied Kane's validity framework to map current evaluation practices and identify opportunities for improvement. (3)
Evaluation Plan: methods and measures	To evaluate changes made based on this analysis, we will conduct structured interviews with evaluators regarding attitudes towards changes in assessment collection, as well as linguistic analysis of evaluation content pre- and post-intervention.
Outcomes	Analysis identified inconsistency in assessment production (delayed or missing evaluations, inconsistent use of behavior-based comments), low evidence for generalizability of some evaluated items, and difficulty extrapolating from performance in didactic sessions to clinical performance. To standardize assessment production, the clerkship moved from use of an asynchronous online evaluation to biweekly evaluation meetings conducted by clerkship leadership with all members of the inpatient team (resident, intern, attending). A structured interview was used to assess entrustment in each of seven entrustable professional activities. Narrative evaluations were generated collaboratively during the interview. Two evaluation items were updated: an item evaluating medical knowledge was eliminated as supervisors' evaluations were not clearly generalizable, and physical examination was de-weighted due to low numbers of observations.
Innovation's strengths and limitations	The framework helped guide a holistic evaluation of current practices and highlighted multiple interrelated issues. Several issues in validity were external to practices in the clerkship setting and so were difficult to address.
Feasibility and transferability	Similar analysis has previously been described in the GME setting. (4) Interview-based evaluations are time-intensive, but similar practices have been described at other institutions previously. (5)
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Submitter First Name	Ellie
Submitter Last Name	Garbade
Submission Title	DRAFTing in the Moonlight: A Novel Tool for Diagnostic Reflection and Calibration
Objective or purpose of innovation	We piloted a novel tool for residents to identify working diagnoses and level of certainty upon admission, and reflect on their diagnostic reasoning after 72 hours.
Background and/or theoretical framework and importance of the field	Situativity theory explains how diagnostic reasoning is impacted by knowledge and the context in which diagnoses are made. Tracking patient outcomes can improve diagnostic reasoning by providing performance feedback and enabling iterative calibration in the context of the workplace and diverse patients. Although prior work shows that internal medicine residents endorse these practices, they do not consistently track outcomes for patients they admit overnight. Given the focus on undifferentiated patients, night float provides an ideal setting for intentional diagnostic reflection.
Innovation design	Residents voluntarily used the novel DRAFT (Diagnostic Reflection and Feedback Tool) to track three admissions per night, record the working diagnosis, diagnostic certainty, and patient identity categories. They documented and reflected on diagnostic changes after 72 hours. Investigators reviewed charts and categorized the degree of diagnostic change.
Evaluation Plan: methods and measures	We assessed residents' attitudes and practices around diagnostic reflection pre- and post-intervention. The correlation between certainty and degree of diagnostic change was evaluated.
Outcomes	Although most residents surveyed track patient outcomes for interesting cases, the lack of a reliable system hinders the process. Of 24 residents, 10 accessed the DRAFT and logged 138 cases. Although residents' certainty correlated inversely with the degree of diagnostic change, notably 6.5% of high certainty cases had a major diagnostic change and 35% of low certainly cases had no diagnostic change.
Innovation's strengths and limitations	This novel tool facilitates diagnostic reflection for cases with varying degrees of certainty, allowing users to calibrate their reasoning and "catch" seemingly straightforward cases that evolve. The voluntary nature of the pilot introduces selection bias and lessened resident participation.
Feasibility and transferability	Future work involves building the DRAFT into the electronic medical record and working with residency leadership to include diagnostic reflection as required training.
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Submitter First Name	Katelynn
Submitter Last Name	Getchell
Submission Title	Impact of a Drawing Course on Medical Student Communication
Research Statement/Research Question	Our study investigates the impact of an anatomy-focused art elective on medical students' comfort using drawing to explain diagnoses to patients.
Background and/or theoretical framework and relevance of the study	Many physicians report using drawing as a means of communicating with patients. The use of these visual aids in clinical practice improves patient satisfaction and betters recall and understanding of health information.
Design and methods	Second year medical students (n = 7) at Georgetown University School of Medicine completed surveys before and after a six-week art course. During the course, students learned about the intersection of illness and art, reflected on how illness has been portrayed by artists and society, and learned the basics of anatomical drawing.
Results of data collection and analysis	After completing the course, students reported: (1) increased comfort levels verbally explaining diagnoses to patients ($p = 0.03$); (2) increased comfort levels using drawing to explain diagnoses to patients ($p = 0.008$); and (3) increased likelihood that they would use drawing to help patients understand their diagnoses and treatments ($p = 0.03$).
Limitations	This study is limited by small sample size. Further research is needed to see if an improvement in student comfort with communication translates to an actual improvement in patient-provider communication and outcomes.
Conclusions	This data suggests that studying anatomical drawing and art history provides students with additional tools to effectively impart complex medical issues to patients. Given the improvement in comfort with medical illustration after the course and the established utility of visual aids in patient understanding, this data also suggests that teaching medical students anatomy drawing could lead to improved physician-patient communication.
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Submitter First Name	Alexandra
Submitter Last Name	Helliwell
Submission Title	Implementing a Vaccine Counseling Module for Pre-clerkship Medical Students
Objective or purpose of innovation	To enhance knowledge of vaccines and vaccine-preventable diseases (VPDs) and equip students with strategies for promoting vaccination and overcoming vaccine hesitancy.
Background and/or theoretical framework and importance of the field	Vaccine hesitancy, which describes a broad range of attitudes towards vaccination, was named among the top ten threats to global health by the WHO in 2019. The COVID-19 pandemic and outbreaks of other VPDs have illuminated the momentous rise in vaccine-hesitant attitudes and the danger they pose to public health. As a trusted source of information, healthcare providers play a critical role in challenging vaccine hesitancy, yet few institutions have dedicated curriculum in this area. We developed a module for a pre-clerkship clinical skills course to fill the gap in vaccine counseling education.
Innovation design	Using a flipped classroom model, students were assigned pre-class materials to review including a newly created iBook on vaccines, VPDs, and counseling strategies, as well as a video example. This was followed by small group discussion and case-based practice using a focused counseling guide.
Evaluation Plan: methods and measures	We created a pre- and post-session survey to assess knowledge and confidence related to vaccine counseling. The impact of the curriculum on assessment scores was tested using descriptive statistics, chi square testing, and paired t-testing.
Outcomes	Of 144 enrolled students, 74 completed the pre-assessment and 58 completed the post-assessment. Following the module, knowledge scores increased by 39%, and self-reported confidence increased by 81%, from 44% to 80%.
Innovation's strengths and limitations	We successfully implemented a vaccine counseling curriculum for pre-clerkship medical students. One strength of the curriculum is the written, audiovisual, and applied learning activities, which appeal to multiple types of learners. The evaluation of the curriculum is limited by use of lower Kirkpatrick levels and confounding variables, such as prior experience and knowledge.
Feasibility and transferability	This curriculum is appropriate for learners at various stages of training and can be readily adapted for use at other institutions.

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Submitter First Name	Leigh Ann
Submitter Last Name	Holterman
Submission Title	TempORAL Trends in Medical Student Wellbeing: Utilizing App-Based Daily Data Collection
Research Statement/Research Question	This study aimed to better understand fluctuations of medical student wellbeing outcomes within, and across, academic years.
Background and/or theoretical framework and relevance of the study	Medical students begin their training with similar or better mental health compared to age-matched college graduates in other fields (1). However, medical students endorse declining mental health as training progresses (2,3). Existing studies on medical student wellbeing trends used a cross-sectional or qualitative design. There is no prior research that examines medical student wellbeing longitudinally.
Design and methods	A total of 110 medical students (number of first year to fourth year students: 39, 34, 24, and 13) were included in the study. Participants used the WE MD app to complete nightly behaviORAL inventories from September to April in 2021-2022, assessing overall wellbeing, mood, stress/anxiety, focus. App engagement was incentivized via digital currency for prizes. Mixed models were used to compare wellbeing outcomes across cohort years.
Results of data collection and analysis	Wellbeing outcomes varied significantly by academic year. Wellbeing was highest for fourth years followed by first years, whereas second and third years had the lowest levels (all comparisons p=< 0.001). A similar pattern was observed for mood. First and second years had higher levels of anxiety/stress and focus than third and fourth year students. Within academic years, there was a notable dip in mood and wellbeing (and an increase in stress/anxiety and focus) during the Dedicated Study Period for USMLE Step 1 Exam.
Limitations	Self-reported data relied on recall and subjective reflection. Participants may differ from the student body as a whole, limiting generalizability. More research is needed to understand the reasons for the fluctuations in outcomes.

Conclusions	These longitudinal data provide details about different aspects of wellbeing within and across class years of medical school. The findings can guide institutions in implementing wellness interventions during periods of peak stress.
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Submitter First Name	Erin
Submitter Last Name	Hulfish
Submission Title	Creation of a Novel Distance-Based Learning Curriculum Comparing Immersive Virtual Reality Curriculum to Standardized Simulation for Residents Across Multiple Disciplines
Objective or purpose of innovation	To determine if residents exposed to an immersive virtual reality (VR) training program compared to a traditional mannequin-based program (TM) is as effective in teaching technical and non-technical skills for both immediate and long-term knowledge.
Background and/or theoretical framework and importance of the field	Simulation is an effective mode of teaching and promotes knowledge retention in real life clinical scenarios. However, since the COVID-19 pandemic, novel strategies are needed to provide high-quality distance-based education. VR has advanced medical education by providing realistic scenarios to mimic real-life encounters. The effectiveness of VR for teaching technical and non-technical skills to multi-disciplinary front-line clinicians has not been studied.
Innovation design	This was a prospective randomized controlled trial including residents from five different residency programs randomized to either VR or TM scenarios. Participants took part in standardized simulations, followed by a scripted debriefing and teaching module, then individually assessed in a simulation scenario and then again in three months to assess for learning retention.
Evaluation Plan: methods and measures	Initial demographic and simulation experiential information was collected. All testing scenarios were recorded and assessed via standardized validated direct observational assessments for both the initial and three month follow up simulations. Residents completed self-assessment surveys after the initial session.
Outcomes	47 residents were enrolled in the TM arm vs 39 in the VR arm. There was no significant difference in demographic or experiential information between the two groups. There was no statistically significant difference between the two groups in either the technical or non-technical outcomes.
Innovation's strengths and limitations	This was an initial pilot study representing a novel application of immersive VR for multidisciplinary residents. This was a single site study that may not be

	generalizable to other residency practices. We have not evaluated outcomes in clinical practice.
Feasibility and transferability	This study demonstrates that the use of virtual reality immersive simulation to teach technical and non-technical skills to multi-disciplinary front-line clinicians is an effective feasible modality.
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Submitter First Name	Bill
Submitter Last Name	Hum
Submission Title	Evaluating High-Value Care Practices in Medical Students Using Case-Based Exams
Research Statement/Research Question	To what extent do senior medical students practice high-value care (HVC)?
Background and/or theoretical framework and relevance of the study	HVC involves using the optimal amount of resources to provide the best possible health and financial outcomes for the patient(1). "Value" does not necessarily mean the cheapest treatment; rather, it refers to whether an intervention's benefits outweigh its cost(2). Practicing HVC can reduce medical treatment overuse and health system and patient costs(3). Teaching these principles to students early in their careers may improve future generations of physicians' understanding of HVC and improve patient care.
Design and methods	A total of 123 students participated in two high-stakes clinical performance exam cases. For each case, based on their differential diagnoses, students were asked to select from a pre-determined checklist the most appropriate lab tests, imaging, and consults they would order for the patient. The number of interventions that students selected and the total cost of care were calculated. Each intervention was categorized as either "low-value" (LV) or "high-value" according to treatment plans determined by practicing physicians.
Results of data collection and analysis	On average, students selected 5 additional LV lab/imaging tests for each case that were considered unnecessary based on value-based practices. In terms of costs of care, these LV items on average would have increased the standard of care treatment costs by $920 (case1) and $1,069 (case2). Interestingly, lower-cost LV items were selected more frequently, resulting in a larger burden on the cost of care; the higher-cost LV items were selected less often, resulting in fewer wasted resources.
Limitations	The data assumes that students formulated differential diagnoses as intended by the cases. Differing differentials may influence student decision in selecting tests. Additionally, the categorization of "low-value" treatments may be subjective.

Conclusions	Our results demonstrate a deficit in students' understanding of HVC principles. To address this, we plan to develop and implement short HVC modules that can be offered to clerkship students.
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Submitter First Name	Shahriar
Submitter Last Name	Islam
Submission Title	A Qualitative Analysis of Schwartz Rounds' Impact on the Well-being of Healthcare Providers Using the PERMA Model for Human Flourishing
Research Statement/Research Question	The main objective of this qualitative study was to assess Schwartz Rounds' potential for enhancing clinician flourishing.
Background and/or theoretical framework and relevance of the study	Interventions that improve staff well-being, such as Schwartz Rounds (SR), are important to address clinician burnout. SR is an interprofessional forum that promotes discussion of the emotional aspects of patient care in the context of trust and empathy. SR normalizes emotional experiences, increases understanding among staff, reduces provider psychological distress, and enables compassionate patient care. Research has yet to analyze SR's impact on clinician flourishing. Flourishing can be defined by the elements of "PERMA" (positive emotion, engagement, relationships, meaning, and accomplishment). This study seeks to analyze the perspectives of clinicians who attended SR through the lens of PERMA.
Design and methods	Clinicians participated in focus group (FG) interviews. Questions were developed from the Secure Flourishing Index and Community Workplace Flourishing validated tools. Investigators independently transcribed, coded, and analyzed the FG transcripts using a direct content analysis based on the conceptual framework of PERMA.
Results of data collection and analysis	FG participants included 16 SR attendees. Seven themes were characterized among frequent attendees: SR 1) serves as a safe and trusted space, 2) promotes validation and support, 3) facilitates introspective thinking, 4) stimulates perspective shifts, 5) augments compassion, 6) reaffirms purpose, and 7) positively impacts one's professional identity. In comparison, themes 3 and 5-7, and 8) humanizes medicine were characterized among non-frequent attendees. All themes reflected one or more PERMA categories.

Limitations	This single-center study with a FG approach is limited to a small convenience sample of participants, and therefore findings may not be generalizable to SR attendees at other institutions.
Conclusions	This study identified common themes sourced in other empirical studies. These themes underlie aspects of PERMA and highlight SR's potential to elevate clinician flourishing. Future studies will be important to further evaluate these finding's significance.
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Submitter First Name	Vinayak
Submitter Last Name	Jain
Submission Title	Barriers to the Professional Identity Formation of International Medical Graduates: A Qualitative Study
Research Statement/Research Question	What are the barriers faced by international medical graduate (IMG) trainees in their professional identity formation (PIF)?

Background and/or theoretical framework and relevance of the study	Research on PIF in medical education is concerned with the socialization process that teaches trainees how to think, act, and feel like a doctor [1]. According to Cruess et al, multiple factors can influence the process of socialization in shaping a physician's professional identity [2]. Although researchers have made significant inroads into the PIF of trainees, there remains a dearth of literature guiding our understanding of this process among IMGs practicing in the United States (US) who constitute up to 25% of the US physician workforce [3,4].
Design and methods	Participants were recruited from a healthcare system in the East Coast in the United States. All interviews followed a semi-structured interview guide. Transcripts were iterative coded by the team using a socialization framework [2].
Results of data collection and analysis	A total of 15 participants were interviewed (9 Internal Medicine, 3 Pediatrics, 2 Obstetrics & Gynecology and 1 Physiatry resident) who graduated from India, Caribbean, Germany, Japan, Venezuela, Syria and Australia. Barriers to participants' PIF included absence of role models/mentorship that have gone through a similar path, impact of clinical experience (e.g., bias/prejudice form patients), non-clinical experiences (e.g., navigating immigration laws, lack of a credit score), the health care system (e.g., insurance models, electronic medical record redundancies) and isolation from family/friends at home countries.
Limitations	The study was conducted at a single institution.
Conclusions	Our participants represented several geographic regions providing rich insight into the barriers faced by IMGs in developing PIF. Trainees in programs that had a greater number of IMGs reported fewer barriers. Addressing barriers unique to the PIF of IMGs can help improve the professional experience of IMGs that form an integral part of the US healthcare workforce.
References	1.) Miller GE. The assessment of clinical skills/competence/performance. Acad Med. 1990;65(9 suppl):S63–S67.2.) Cruess, RL; Cruess, Sylvia R; et al. A Schematic Representation of the Professional Identity Formation and Socialization of Medical Students and Residents: A Guide for Medical Educators. Academic Medicine: June 2015 - Volume 90 - Issue 6 - p 718-7253.) International medical graduates in the US Physician Workforce and Graduate Medical Education: current and historical trends. Ahmed AA, Hwang WT, Thomas CR Jr, Deville C Jr. J Grad Med Educ. 2018;10:214–218.4.) Wyatt TR, Balmer D, Rockich-Winston N, Chow CJ, Richards J, Zaidi Z. 'Whispers and shadows': A critical review of the professional identity literature with respect to minority physicians. Med Educ. 2021 Feb;55(2):148-158.
Submitter First Name	Jeremy
Submitter Last Name	Jones
Submission Title	The Costs of Care: A Novel Curriculum to Introduce Medical Students to the Financial Impact of Healthcare
Objective or purpose of innovation	We sought to create a curriculum to increase clerkship students' understanding of healthcare costs and impact on patients. We hoped to increase student interest in employing high value care (HVC) principles in clinical practice.
Background and/or theoretical	The US has the highest healthcare expenditures per capita yet ranks last among high-income countries in outcomes. Additionally, one in ten Americans is burdened

framework and importance of the field	by medical debt. Yet, most trainees are unaware of healthcare costs despite their influence on patients' healthcare decision-making.
Innovation design	In January 2022, we introduced an optional supplement to the internal medicine clerkship that allowed students to, after obtaining consent, examine a copy of their patient's hospital bill and write a reflection. Sample de-identified bills also showed insurance adjustments, payments, and final patient responsibility. A randomly selected cohort was also given dedicated time for the activity and faculty-led didactics.
Evaluation Plan: methods and measures	All students who completed the activity received a required, anonymous post-clerkship survey.
Outcomes	29/121 (24%) students participated. Of those who responded to the survey, 18/21 (86%) agreed that the exercise improved their understanding of costs of care and 16/18 (88%) reported this knowledge would influence their clinical practice. Common themes in responses included surprise at the costs, increased empathy towards patients navigating claims, and desire for more exposure to HVC.
Innovation's strengths and limitations	Reflections and survey results showed students found this activity perspective-changing and it filled an unmet need in the curriculum. Findings are limited by the current sample size, highlighting the challenge of supplemental learning during clerkships. However, the random cohort reduces the risk of selection bias in participation and efforts are in place to expand curricular time for this activity. Next steps include evaluating whether the exercise leads to sustained impact on clinical practice.
Feasibility and transferability	This pilot is impactful and easily transferable across institutions, relying only upon an institutional contact for bill generation.
References	1. Organisation for Economic Co-Operation and Development. (2022, August 5). Health expenditure and financing - OECD statistics. OECD.Stat. Retrieved October 25, 2022, from https://stats.oecd.org/Index.aspx?DataSetCode=SHA 2. Schneider, E., Shah, A., Doty, M. M., Tikkanen, R., Fields, K., & Williams, R. D. (2021, August 4). Mirror, Mirror 2021: Reflecting Poorly. Commonwealth Fund. Retrieved October 25, 2022, from https://www.commonwealthfund.org/publications/fund-reports/2021/aug/mirror-mirror-2021-reflecting-poorly3. Kuehn BM. US Health System Ranks Last Among High-Income Countries. JAMA. 2021;326(11):999. doi:10.1001/jama.2021.15468 https://jamanetwork.com/journals/jama/article-abstract/2784346#:~:text=The%20US%20also%20ranked%20last,in%20patient%20engagement%20and%20preferences.4. Kaiser Family Foundation. 1 in 10 Adults Owe Medical Debt, With Millions Owing More Than $10,000. March 2022. Retrieved October 26, 2022. https://www.kff.org/health-costs/press-release/1-in-10-adults-owe-medical-debt-with-millions-owing-more-than-10000/5. Kaiser Family Foundation. Americans' Challenges with Health Care Costs. July 2022. Retrieved October 26, 2022. https://www.kff.org/health-costs/issue-brief/americans-challenges-with-health-care-costs/

Submitter First Name	Elizabeth
Submitter Last Name	Kachur
Submission Title	Social Media and Professionalism Concerns - An OSCE Station for Residents
Objective or purpose of innovation	• To address unprofessional communications on social media • To provide skills practice for confronting a colleague about professionalism lapses
Background and/or theoretical framework and importance of the field	Social Media has become a major communications tool for residents to address work and personal issues (e.g., venting frustrations). This dual use can easily lead to boundary problems. Group texts are particularly at risk for becoming public and can quickly be scrutinized for professional norm violations. (1-5) At Maimonides Medical Center (Brooklyn, NY) all Internal Medicine residents (N&#3f100) are required to complete two 5-station OSCEs per year. In 2021-2022 one of these stations assessed the residents' ability to address unprofessional postings with a peer.
Innovation design	The Resident Instructions for the 10-minute OSCE station included a mock-up of the group conversation. Trainees had to address a colleague's decision to "ignore" a junior resident in need of supervision and to express concerns about the inappropriate group chat use. The encounter was followed by instant Standardized Peer (SP) and faculty feedback.
Evaluation Plan: methods and measures	After a post-OSCE group debriefing residents completed a program evaluation form. Faculty and SP evaluation forms yielded performance data.
Outcomes	Residents confirmed the common occurrence of these type of social media communications attesting to station validity. In the post-OSCE program evaluation the social media station was considered to be of high educational value. Performance data indicated no difference between the residents' ability to confront the colleague about venting via social media and the supervision problem.
Innovation's strengths and limitations	Formative OSCE stations provide good opportunities for discussing problematic topics (e.g., social media use). Since "venting" always has to be about "something," and the supervision of junior colleagues is equally tricky, a clear attribution of performance and satisfaction ratings can be complicated.
Feasibility and transferability	The station was modified from a Pediatrics OSCE to assure local relevance. Implementation in a large Medicine Residency program was successful.
References	1. Dawkins R, King WD, Boateng B, Nichols M, Desselle BC. Pediatric Residents' Perceptions of Potential Professionalism Violations on Social Media: A US National Survey. JMIR Med Educ. 2017 Jan 31;3(1):e2. doi: 10.2196/mededu.5993. PMID: 28143804; PMCID: PMC5309435.2. Kitsis EA, Milan FB, Cohen HW, Myers D, Herron P, McEvoy M, Weingarten J, Grayson MS. Who's misbehaving? Perceptions of unprofessional social media use by medical students and faculty. BMC Med Educ. 2016 Feb 18;16:67. doi: 10.1186/s12909-016-0572-x. PMID: 26887561; PMCID: PMC4757980.3. Ovaere S, Zimmerman DDE, Brady RR. Social Media in Surgical Training: Opportunities and Risks. J Surg Educ. 2018 Nov;75(6):1423-1429. doi:

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Submitter First Name	Yoav
Submitter Last Name	Karpenshif
Submission Title	Evaluating the Impact of a Data-Driven Population Health Intervention on Internal Medicine Subspecialty Fellows' Practice Habits
Research Statement/Research Question	We sought to determine the impact of a population health curriculum centered around an EHR dashboard on the attitudes of cardiology and pulmonary/critical care fellows towards the education, the technology, and their future practice habits.
Background and/or theoretical framework and relevance of the study	The ability to interpret and act on population health data is an emerging skill for physicians and requires technology integration. Receiving data on quality metrics and benchmarks related to patient populations is now a requirement of the Accreditation Council of Graduate Medical Education. Competency with this skillset has implications for quality of care, equity, and physician reimbursement. To close this educational gap, we developed a population health curriculum and an EHR dashboard that included subspecialty-specific quality metrics.
Design and methods	Cardiology (CVM) and pulmonary/critical-care (PCC) fellows (F1-F3) who completed the curriculum were invited to participate in semi-structured interviews focused on their perceptions of the curriculum, the technology, and the influence of both on their practice habits. Transcribed interviews were coded using both an inductive and a deductive approach, using the UTAUT technology acceptance model2. Subjects were recruited until saturation of themes was achieved.
Results of data collection and analysis	Fourteen fellows (9 CVM; 5 PCC) were interviewed. Major themes elicited included the importance of protected time for population health management, access to actionable patient-level data, and reducing barriers to acting on that data; and perceptions of the value of population health tools in fellows' current and future practices. Fellows provided many examples of how the curriculum and technology influenced their current and predicted future practice habits.
Limitations	Generalizability is limited as we studied fellows from two medical subspecialties at one institution.
Conclusions	Medicine subspecialty fellows identified dedicated time for population health management, integration into clinic workflow, trust in the validity of data, and ability to change patient care in response to data as important factors influencing usefulness of the curriculum and acceptance of the dashboard technology.
References	1. Acgme. ACGME Common Program Requirements (Fellowship).2. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS quarterly, 425-478.

Submitter First Name	Karen
Submitter Last Name	Lounsbury
Submission Title	A Systemic Approach to Reducing Bias in Preclinical Curriculum Materials at the Larner College of Medicine
Objective or purpose of innovation	The goal of this innovation was to reduce biased content by following a comprehensive process to review, revise, and monitor preclinical course materials.
Background and/or theoretical framework and importance of the field	Systemic racism and other forms of bias are embedded within the institution of medicine, and thus also present in preclinical educational materials at the Larner College of Medicine (LCOM). LCOM formed a Medical Education Anti-Racism Task Force to conduct a longitudinal exploration of the curriculum and to prioritize recommendations to the Office of Diversity, Equity, and Inclusion and the LCOM Dean. As part of this larger framework, the curriculum team identified tools to screen and revise curriculum materials.
Innovation design	For consistency, content was reviewed using Amy Caruso Brown's "Checklist for Assessing Bias in Medical Education Content". Instructional designers suggested revisions to faculty with recommendations from the AAMC resource, "Guide to Language, Narrative, and Concepts". Faculty-approved revisions were implemented in upcoming sessions.
Evaluation Plan: methods and measures	Identified items and proposed revisions were recorded, and progress was monitored in the annual quality assurance review of each course. Data were collected from student course evaluations to measure the effectiveness of content specific to diversity, equity, and inclusion.
Outcomes	Materials for 8 of 11 preclinical courses have undergone review. Thus far, 165 items have been identified, with a predominance of changes related to gender inclusivity (54%) and race (38%). Substantive changes have been implemented and others will be applied in the next academic year. Evaluations elicited a positive response to changes and provided constructive feedback.
Innovation's strengths and limitations	Along with the reduction in bias within curriculum materials, this process has facilitated thoughtful change and renewed collaboration with teaching faculty. Despite our process and the subsequent changes that were made, we are fully aware this strategy alone is not systemically transformative.
Feasibility and transferability	An intentional and longitudinal anti-bias strategy is both feasible and necessary for preparing our future physicians to address healthcare inequities.
References	Caruso AB, Hobart TR, Botash AS, Germain LJ. Can a checklist ameliorate implicit bias in medical education? Medical Education. 2019;53(5):510American Medical Association and Association of American Medical Colleges. Advancing Health Equity: Guide on Language, Narrative and Concepts. Updated 2021. Accessed October 31, 2022. Available at ama-assn.org/equity-guide
Submitter First Name	Patricia

Submitter Last Name	Luck
Submission Title	The Photo/Tiny Story: A Novel Activity for Reflective Practice in Medical Education
Objective or purpose of innovation	We developed the Photo/Tiny Story, a mixed media tool grounded in the health humanities, to foster reflective practice in medical students. The tool combines the aims to generate meaningful, specific reflection of students' beliefs, biases, and emotions toward patient encounters.
Background and/or theoretical framework and importance of the field	Effectively integrating the health humanities into medical school curriculum can enhance the development of professional competencies including clinical observation and communication, tolerance of uncertainty and discomfort, and empathy.1,2 The 55-word genre has been widely implemented as a reflective tool to strengthen these competencies.3,4 Similarly, art observation has been shown to improve clinical skills and actively attending to bias.5,6 Grounded by theories of critical reflection,7,8 The Photo/Tiny Story combines close-looking and close-reading skills with reflection on navigating patient encounters.
Innovation design	First year students were introduced to The Photo/Tiny Story, a tool combining image creation with a 55-word story, during an early clinical course including clinical preceptorships. They were tasked with taking a photograph and writing an accompanying “tiny” story inspired by a memorable patient encounter. Students subsequently discussed their Photo/Tiny Stories in small, facilitated groups.
Evaluation Plan: methods and measures	Using Kirkpatrick’s model,9 we evaluated students’ reactions and learning in a post activity survey including numeric and narrative items. We used thematic analysis to identify themes within the narrative comments and Photo/Tiny Story assignments.
Outcomes	Of 104 students, 74.2% felt the tool was effective for self-reflection. We identified the following themes in students' assignments: the challenge of biopsychosocial practice, discrepancies between expectations and reality, and moments of uncertainty.
Innovation’s strengths and limitations	Combining image creation with brief narrative expression allows creative engagement that fosters reflection of complex clinical encounters. Themes identified are critical to clinical practice and professional identity formation. Limitation – Implementation limited to single institution and trainee group.
Feasibility and transferability	The process requires minimal resources, offers creative/active engagement to learners, and is easily transferable to different learner stages and clinical contexts.
References	1. Howley L, Gaufberg E, King B. The Fundamental Role of the Arts and Humanities in Medical Education. Washington, DC: AAMC; 2020.2. Wald HS, McFarland J, Markovina I. Medical humanities in medical education and practice. Med Teach. 2019;41(5):492-496. doi:10.1080/0142159X.2018.14971513. Scheetz A, Fry ME. A piece of my mind. The stories. JAMA. 2000;283(15):1934.doi:10.1001/jama.283.15.19344. Fogarty CT. Fifty-five word stories: "small jewels" for personal reflection and teaching. Fam Med. 2010;42(6):400-402.5. Daiss S, Brown-Clark S. Five Question Protocol: Art and Observation at the University of Rochester. University of Rochester School of Medicine Division of Medical Humanities and Bioethics. 2017-2018. Accessed October 13, 2022. https://medhum.digitalscholar.rochester.edu/6. Dolev JC,

	Friedlaender LK, Braverman IM. Use of fine art to enhance visual diagnostic skills. JAMA. 2001;286(9):1020-1021. doi:10.1001/jama.286.9.1020 7. Ng SL, Kinsella EA, Friesen F, Hodges B. Reclaiming a theoretical orientation to reflection in medical education research: a critical narrative review. Med Educ. 2015;49(5):461-475. doi:10.1111/medu.126808. Mann K, Gordon J, MacLeod A. Reflection and reflective practice in health professions education: a systematic review. Adv Health Sci Educ Theory Pract. 2009;14(4):595-621. doi:10.1007/s10459-007-9090-29. Dzara K, Gooding H. A Guide to Educational Pyramids Commonly Used in Medical Education Programs. Acad Med. 2022;97(2):313. doi:10.1097/ACM.0000000000003816
Submitter First Name	Hyacinth
Submitter Last Name	Mason
Submission Title	Learner and Teacher Perspectives on Racial and Ethnic Equity in Clinical Feedback: A Qualitative Study
Research Statement/Research Question	Using narratives from medical learners and teachers, we explored the equity/inequity of clinical-clerkship feedback, in the context of students' race/ethnicity.
Background and/or theoretical framework and relevance of the study	Teachers' feedback on medical learners' clinical performance is pivotal to learners' ability to maximize their potential to become competent physicians, yet feedback contributes to clinical-grading disparities1,2. We used critical race theory (CRT)3 as a lens to explore medical learners' and teachers' perspectives on racial/ethnic equity in clinical-clerkship feedback, a relatively unexplored topic.
Design and methods	This secondary analysis4 utilized transcripts focused on clinical grading disparities from 29 learners and 30 teachers at three U.S. medical schools1. Secondary coding on all transcripts resulted in a memo-writing template focused on feedback-inequity-related narratives. Using a critical race methodology4, we identified themes surrounding perspectives on clinical feedback.
Results of data collection and analysis	Forty-eight participants (22 teachers, 26 learners) described how clerkship-learners from racial/ethnic groups underrepresented in medicine may receive less actionable feedback needed for clinical-professional development. Thematic analysis yielded three feedback-inequity-related themes: 1) Teachers may have limited skillsets to provide equitable feedback; 2) Teachers' racial/ethnic biases influence feedback provision; 3) Racial/ethnic biases permeate the clinical-learning environment creating inequities that shape feedback experiences. Learners and teachers alike, shared their reticence to talk about racial/ethnic feedback inequities due to perceived consequences, including negative evaluations or worse.
Limitations	In this secondary analysis, we were limited to existing data and unable to sample for theoretical sufficiency5 regarding racial/ethnic disparities in clinical-clerkship feedback.
Conclusions	Findings suggest that teacher bias and the clinical-learning-environment influence racial/ethnic feedback inequities. Broader efforts are needed to provide equitable and actionable feedback that ensures every student has the same opportunities to become into the competent physician they aspire to be and to create learning

	environments that reflect a fundamental tenet of the medical profession, do no harm.
References	1 Hanson JL, Pérez M, Mason HRC, et al. Racial/ethnic disparities in clerkship grading: Perspectives of students and teachers [published online ahead of print Aug 9, 2022]. Acad Med. doi: 10.1097/ACM.0000000000049142 Lee KB, Vaishnavi SN, Lau SKM, Andriole DA, Jeffe DB. Cultural competency in medical education: Demographic differences associated with medical student communication styles and clinical clerkship feedback. J Natl Med Assoc. 2009;101(2):116-126. 3 Fernander A. What does critical race theory have to do with academic medicine? J Natl Med Assoc. 2022;114(3):274-277. 4 Solórzano DG, Yosso TJ. Critical race methodology: Counter-storytelling as an analytical framework for education research. Qual Inq. 2002;8(1):23-44.5 Charmaz K. Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis. Thousand Oaks, CA: Sage; 2006 page 114.
Submitter First Name	Hyacinth
Submitter Last Name	Mason
Submission Title	Less Grit, More Support: A qualitative analysis of common assets and challenges for first-generation college graduate and/or low income medical students
Research Statement/Research Question	Applying an anti-deficit lens[1] to narratives from medical students from first-generation college graduate and/or low income (FG/LI) backgrounds, we explored assets and challenges encountered as they navigate the physician pathway.
Background and/or theoretical framework and relevance of the study	FG/LI medical trainees represent a diverse student population poised to offer significant benefit to healthcare and medical education as well as contributing to building a physician workforce that can address health equity disparities. Despite this fact, FG/LI students have predominantly been viewed through a deficit lens without the acknowledging assets they bring to medicine, reflecting the fact that medical education infrastructure has been challenged to meet the needs of an increasingly diverse student body[2, 3].
Design and methods	A socio-demographically diverse sample of 48 FG/LI students (from 27 US medical schools), participated in semi-structured interviews. Interviews ended when saturation was achieved. The constant comparative method and a constructivist grounded theory approach was used to analyze transcripts and identify themes.
Results of data collection and analysis	Thematic analysis resulted in four themes: 1) Sociocultural capital 2) Education/professional aims 3) Finances and 4) Intersectionality. In each theme, students described how assets they brought to medicine were intrinsically linked to the challenges they experienced within the same theme. Students described how their backgrounds/experiences led to the development of sociocultural capital, skills, and knowledge that contributed meaningfully to medical education and healthcare. However, these assets were frequently the outcome of developing grit and resilience in response to navigating the physician pathway. Students also shared opportunities to mitigate challenges the medical education system creates for FG/LI students.
Limitations	This study is focused medical students in the US and is based on a self-identified sample.

Conclusions	Findings from this study of FG/LI suggests that navigating medical education poses obstacles to FG/LI students. An anti-deficit lens may assist medical education as it strives to create inclusive learning environments for all students, regardless of socio-demographic background.
References	1. Harper SR. Black Male Student Success in Higher Education: A Report From the National Black Male College Achievement Study. Philadelphia, PA: University of Pennsylvania, Center for the Study of Race and Equity in Education. https://web-app.usc.edu/web/rossier/publications/231/Harper%20(2012)%20Black%20Male%20Success.pdf. Published in 2012.2. Boatright DH, Samuels EA, Cramer L, Cross J, Desai M, Latimore D, et al. Association between the liaison committee on medical education's diversity standards and changes in percentage of medical student sex, race, and ethnicity. JAMA. 2018 Dec 4;320(21):2267–9.3 Romero R, Miotto K, Casillas A, Sanford J. Understanding the Experiences of First-Generation Medical Students: Implications for a Diverse Physician Workforce. Acad Psychiatry. 2020 Aug;44(4):467–70.
Submitter First Name	Rory
Submitter Last Name	Merritt
Submission Title	Developing a Dashboard for Understanding the Scope of Mistreatment Across the Learning Environment: You Can't Fix What You Don't Understand
Objective or purpose of innovation	The innovation aims to allow medical schools to easily identify areas of concern for intervention to respond to and ultimately prevent student mistreatment.
Background and/or theoretical framework and importance of the field	The Liaison Committee on Medical Education requires accredited medical schools to develop robust policies and procedures to prevent and respond to medical student mistreatment. Specific mistreatment behaviors are defined and tracked annually by the AAMC Graduation Questionnaire. For medical schools to maintain accreditation, they must understand the types of mistreatment that are occurring, where it occurs, and who is doing it.
Innovation design	An internal and confidential student mistreatment reporting survey system that reflects AAMC mistreatment definitions is available to all medical students at our institution The survey requires reporters to choose a mistreatment type, respondent type, location, and Department. Collected survey data is automatically transposed to a secure, online spreadsheet. This data is fed into a customized "Learning Environment Dashboard" using the freely available online Google Looker Studio.
Evaluation Plan: methods and measures	We will collect information from stakeholders on the ease of Dashboard data interpretation and usability via a survey.
Outcomes	The "Learning Environment Dashboard" allows for rapid identification of areas of concern organized across time, mistreatment type, location, Department, and respondent type. Data can be displayed in heat maps, bar charts, or other easily interpretable formats. Data from the Dashboard can be made easily accessible to multiple stakeholders. At our institution, Dashboard data is used to provide

	Departments with individualized learning environment information to craft prevention interventions.
Innovation's strengths and limitations	Strengths include the wide availability of the software platforms, intuitive dashboard design, and the ability to sort information rapidly. Generating an accurate picture of mistreatment patterns requires sufficient and accurate reporting, which is challenging.
Feasibility and transferability	The process of refining a survey and incorporating its data into a dashboard is straightforward and transferable to any institution.
References	Cook, A. F., Arora, V. M., Rasinski, K. A., Curlin, F. A., & Yoon, J. D. (2014). The prevalence of medical student mistreatment and its association with burnout. Acad Med, 89(5), 749-754. https://doi.org/10.1097/ACM.0000000000000204 Davis, S., & O'Brien, A. M. (2020). Let's Talk About Racism: Strategies for Building Structural Competency in Nursing. Acad Med, 95(12S Addressing Harmful Bias and Eliminating Discrimination in Health Professions Learning Environments), S58-S65. https://doi.org/10.1097/ACM.0000000000003688 Dyrbye, L. N., Lipscomb, W., & Thibault, G. (2020). Redesigning the Learning Environment to Promote Learner Well-Being and Professional Development. Acad Med, 95(5), 674-678. https://doi.org/10.1097/ACM.0000000000003094 Elks, M. L., Johnson, K., & Anachebe, N. F. (2020). Morehouse School of Medicine Case Study: Teacher-Learner Relationships Free of Bias and Discrimination. Acad Med, 95(12S Addressing Harmful Bias and Eliminating Discrimination in Health Professions Learning Environments), S88-S92. https://doi.org/10.1097/ACM.0000000000003678 Fried, J. M., Vermillion, M., Parker, N. H., & Uijtdehaage, S. (2012). Eradicating medical student mistreatment: a longitudinal study of one institution's efforts. Acad Med, 87(9), 1191-1198. https://doi.org/10.1097/ACM.0b013e3182625408 Gan, R., & Snell, L. (2014). When the learning environment is suboptimal: exploring medical students' perceptions of "mistreatment". Acad Med, 89(4), 608-617. https://doi.org/10.1097/ACM.0000000000000172 Lau, J. N., Mazer, L. M., Liebert, C. A., Bereknyei Merrell, S., Lin, D. T., & Harris, I. (2017). A Mixed-Methods Analysis of a Novel Mistreatment Program for the Surgery Core Clerkship. Acad Med, 92(7), 1028-1034. https://doi.org/10.1097/ACM.0000000000001575
Submitter First Name	Christopher
Submitter Last Name	Mooney
Submission Title	Examining generalizability of faculty written comments in clerkship assessments
Research Statement/Research Question	We sought to examine generalizability of faculty written comments in clerkship assessments to inform quality improvement efforts. Specifically, we aimed to: 1) examine attributable facets of variance in quality of written comments, and 2) identify optimal conditions to maximize reliability of comment quality scores.
Background and/or theoretical framework	Written comments of trainees provide meaningful and valid representations of performance, yet significant barriers remain to their quality (1,2). A more complete understanding of the measurement characteristics and behaviORAL processes

and relevance of the study	underlying faculty comments is critical to informing valid assessment decisions as well as related faculty development and research initiatives.
Design and methods	Data comprised 62 faculty members who provided 247 narrative assessments on 51 medical students in their neurology and medicine clerkships. We measured quality of comments using the Narrative Evaluation Quality Instrument (NEQI)(3). We used generatability analyses (G- and D-studies) to explore sources of variance in quality scores and project how reliability estimates change under different measurement conditions. Secondary analyses examined potential differences by faculty gender.
Results of data collection and analysis	Differences across faculty accounted for 59.3% of variability in NEQI scores. Conversely, the quality of comments for students within faculty contributed relatively little to total variance (0.9%), suggesting high internal consistency within faculty. For each faculty, 3 narratives scored with NEQI were required to reach a dependability coefficient of at least 0.80. Reliability patterns were consistent by gender.
Limitations	Findings were derived from a single narrative quality tool. Future work should examine measurement properties using other tools in different settings and clinical contexts.
Conclusions	Variations in the quality of written comments scores were primarily attributed to systematic differences across faculty. Further, faculty were highly stable in the quality of comments across the students they assess, with three scored narratives needed to attain acceptable reliability. Findings provide additional validity evidence of the NEQI and have practical implications to faculty development and research.
References	1. Hatala, R., Sawatsky, A. P., Dudek, N., Ginsburg, S., & Cook, D. A. (2017). Using in-training evaluation report (ITER) qualitative comments to assess medical students and residents: A systematic review. Academic Medicine, 92(6), 868-879. 2. Ginsburg, S., Kogan, J. R., Gingerich, A., Lynch, M., & Watling, C. J. (2020). Taken out of context: hazards in the interpretation of written assessment comments. Academic Medicine, 95(7), 1082-1088.3. Kelly, M. S., Mooney, C. J., Rosati, J. F., Braun, M. K., & Stone, R. T. (2020). Education Research: The Narrative Evaluation Quality Instrument: Development of a tool to assess the assessor. Neurology, 94(2), 91-95.
Submitter First Name	Christopher
Submitter Last Name	Mooney
Submission Title	Bodies, persons, and things: exploring the ambiguity of distressing experiences in medical education
Research Statement/Research Question	We performed a multi-year study that sought to: 1) examine medical students' experiences and meaning making of distressing experiences encountered during early training; 2) understand the influences of these experiences on professional identify formation, and; 3) explore how interventions situated in the health humanities can attenuate negative consequences.
Background and/or theoretical framework	Prior research shows that medical trainees experience trauma related to their educational process in both clinical and pre-clinical phases.1 For many trainees, these experiences begin with cadaveric dissection in the anatomy lab.2

and relevance of the study	
Design and methods	Our multi-year examination included participant observation, instructional interventions, and semi-structured interviews (n=14). We used inductive thematic analysis to identify patterns and derive themes. We subsequently adapted a framework from Roberto Esposito's Persons and Things from The Body's Point of View to guide study conclusions.3
Results of data collection and analysis	We identified fours themes in study data: sense of duty, engaging in violence, (mal)adaptive coping techniques, and personal/professional meaning making. Using a framework of "Bodies, Person, and Things", study themes uncover students' responses to confusing ontological spaces. For instance, students used words like donor, first patient, butcher, violence, respect, desecrate, and disfigure, while also describing a classroom comprised of educational tools, procedures, and instructors.
Limitations	Study findings are limited to a single institutional and educational context. Further work is needed to appropriately understand transferability.
Conclusions	Complex and challenging learning environments in medical education can create a confused ontological relationship between students' personal mORALs and perceived professional duty. This confusion may lead to educational trauma, harmful coping mechanisms, and maladaptive professional identity formation. Methods and materials from the health humanities can help to cultivate a framework for understanding traumatic experiences, positively shape the learning environment, and support the development of knowledge, skills, and attitudes necessary for long-term physician wellbeing.
References	1. Brazeau, C. M., Shanafelt, T., Durning, S. J., Massie, F. S., Eacker, A., Moutier, C., ... & Dyrbye, L. N. (2014). Distress among matriculating medical students relative to the general population. Academic Medicine, 89(11), 1520-1525.2. O'carroll, R. E., Whiten, S., Jackson, D., & Sinclair, D. W. (2002). Assessing the emotional impact of cadaver dissection on medical students. Medical Education, 36(6), 550-554.3. Esposito, R. (2015). Persons and things: from the body's point of view. John Wiley & Sons.
Submitter First Name	David
Submitter Last Name	Mullins
Submission Title	Envisioning Justice, Teaching Bias: Representations of Race and Health Equity in a First Year Medical Curriculum
Objective or purpose of innovation	To use an evaluative curriculum mapping approach to identify gaps and educational opportunities for the incorporation of health justice as an integrated and intrinsic part of preclinical education.
Background and/or theoretical framework and importance of the field	For decades, data have highlighted the adverse health outcomes related to structural violence, i.e., the racial, socioeconomic, and political forces that perpetuate harm against marginalized people. To address disparities and positively impact outcomes, many schools have deployed new curricula and designated lectures to enhance awareness of systems that perpetuate racial inequity. However, formal instruction in race and health equity differs widely across medical schools and often paints only a partial picture of health injustices in medicine.

Innovation design	To quantitatively and qualitatively evaluate content on race and health equity in an integrated pre-clinical curriculum, we examined >600 patient case presentations from the first pre-clinical year at the Geisel School of Medicine.
Evaluation Plan: methods and measures	We analyzed sessions across 8 courses for patient race, diagnosis, relevant context, and social determinants of health. Additionally, we tracked follow-up, or lack thereof, on these themes. We identified significant gaps in the curricular content, including: limited social and racial diversity in case presentations; lack of follow up when race and social contexts were mentioned; racialization of certain disease processes; and persistence of harmful biases.
Outcomes	These gaps represented opportunities for the inclusion of health justice as an intrinsic part of medical education. We identified actionable opportunities to rapidly incorporate health justice as a longitudinal aspect of the curriculum. Collectively, these interventions will allow for extended discussions of health equity to better prepare trainees for future clinical practice.
Innovation's strengths and limitations	Our innovation will allow medical schools to effectively identify opportunities for improving their delivery of curriculum on issues of health equity and justice.
Feasibility and transferability	Although this project involves a time investment from preclinical course directors, it has a high level of feasibility and portability to other institutions.
References	Treacy-Abarca, S., Aguilar, M., Vassar, S.D. et al. Enhancing existing medical school curricula with an innovative healthcare disparities curriculum. BMC Med Educ 21, 613 (2021). https://doi.org/10.1186/s12909-021-03034-7
Submitter First Name	Christina
Submitter Last Name	Nelson
Submission Title	Using storytelling to develop emotional intelligence and leadership skills in medical students
Research Statement/Research Question	Using storytelling to develop emotional intelligence and leadership skills in medical students
Background and/or theoretical framework and relevance of the study	Storytelling is a leadership skill for self-reflection and influence. Yet, little is known about incorporating storytelling into leadership and health systems curricula.
Design and methods	We outline pedagogies and impacts of storytelling in an emotional intelligence-based leadership curriculum for medical students. The semester-long course uses experiential and social learning in small groups and covers three domains: self, teams, and systems. Training includes narrating, writing, and active listening. Storytelling in group discussions and written reflections includes (i) Each session: "rose-bud-thorn" activity sharing a success, growth and challenge (ii) SELF: personal stories exploring assumptions, beliefs and growth (iii) TEAMS: course book

	"Connect" follows six relationships demonstrating interpersonal skills and the leadership fable "Five Dysfunctions of a Team" illustrating successful teamwork (iv) SYSTEMS: improvement success stories; documentary "Code Blue" connecting one's story to systems change (v) Final session celebrating students' success stories and takeaways.
Results of data collection and analysis	44 students took the course between 2019 and 2022. Pre- and post- course analyses demonstrate higher confidence levels in self (3.12 vs 4.20, $p < .001$), teams (3.06 vs 4.00, $p < .001$), and systems (2.55 vs 3.55, $p < .001$) domain competencies. Reflections demonstrate the impact of storytelling on building psychological safety, relationships and community and fostering self-reflection and change.
Limitations	Limitations include single-center experience, time, and small group format.
Conclusions	Storytelling fostered reflection, social learning and community building; Health system educators can help students practice storytelling and recognize its role in transforming people. Storytelling can be incorporated into other courses in alignment with goals and conceptual frameworks
References	1. Bradford D, Robin C. Connect: Building Exceptional Relationships with Family, Friends, and Colleagues. 1st ed. Redfern, Sydney: Currency; 2021. 2. Cleverly-Thompson S. Teaching storytelling as a leadership practice. Journal of Leadership Education. 2018;17(1):132-140. doi:10.12806/v17/i1/a1 3. Kodoth V. The ROI of Storytelling in Healthcare Management. Search the website. https://www.publichealth.columbia.edu/public-health-now/news/roi-storytelling-healthcare-management. Published February 25, 2022. Accessed November 1, 2022. 4. Walker K. LDRS 591 Organizational Behavior & Development—executive book summary ...2. Keith Walker. https://www.keithdwalker.ca/s/Encouraging-the-HeartKouze-PosnerEBS.pdf. Published 2012. Accessed November 2, 2022.
Submitter First Name	Doreen
Submitter Last Name	Olvet
Submission Title	Examining the prevalence and use of open-ended questions in the assessment of medical knowledge in undergraduate medical education
Research Statement/Research Question	The objective of this study was to determine the prevalence and to describe the use of open-ended questions (OEQs) in the assessment of medical knowledge among US medical students.
Background and/or theoretical framework and relevance of the study	Recent publications describe the value and feasibility of using OEQs to assess medical knowledge(1,2,3). In addition to these benefits, there is increasing pressure on schools to prepare their students for various styles of assessment considering recent changes to USMLE and NMBE exams(4,5). However, it is unknown how many US medical schools include OEQs in their assessment toolkit.
Design and methods	An online survey was sent out to all 156 accredited US medical schools. Questions addressed the use of OEQs to assess medical knowledge in the pre-clerkship and clerkship years. Descriptive statistics were calculated.
Results of data	Currently, 48 medical schools have completed the survey (31% response rate). Thirty-two schools (67%) reported using OEQs for medical knowledge assessment

collection and analysis	during the pre-clerkship. Eighteen of the 32 (55%) use OEQs for formative and 26 (81%) for summative assessment. The type of format included short answer (84%), essay (59%) and fill in the blank/phrases (22%). Most schools reported that OEQs make up only 1-5% of pre-clerkship assessment (41%) or between 6-50% (47%). Four schools (13%) utilize OEQs for 70-100% of pre-clerkship assessment. Only 10 schools (21%) use OEQs for medical knowledge assessment in the clerkship. 100% of the 10 schools use OEQs in clerkships for summative assessment and only 4 (40%) for formative assessment. Clerkship OEQs were either in essay (70%) or short answer format (70%). On average, schools have used OEQs for 9.3 years (range: 1-21 years).
Limitations	There is a low survey response rate, which may result in an overestimation of OEQ use; however, data collection is ongoing. Data on why schools utilize OEQs is also being collected.
Conclusions	Medical schools are incorporating OEQs to some extent in their assessment systems.
References	1. Bird JB, Olvet DM, Willey JM, Brenner J. Patients don't come with multiple choice options: essay-based assessment in UME. Med Educ Online. 2019;24(1):1649959.2. Wlodarczyk S, Muller-Juge V, Hauer KE, Tong MS, Ransohoff A & Boscardin C (2021). Assessment to Optimize Learning Strategies: a Qualitative Study of Student and Faculty Perceptions. Teaching and Learning in Medicine, 33(3), 245-257.3. Olvet DM, Bird JB, Fulton TB, Kruidering M, Papp KK, Qua K, Willey JM & Brenner JM. (2022). A Multi-institutional Study of the Feasibility and Reliability of the Implementation of Constructed Response Exam Questions. Teaching and Learning in Medicine, 1-14.4. National Board of Medical Examiners. September 4, 2018. Accessed October 30, 2022. https://www.nbme.org/news/new-question-formats-available5. Tsichlis JT, Del Re AM, Carmody JB. (2021). The Past, Present, and Future of the United States Medical Licensing Examination Step 2 Clinical Skills Examination. Cureus, 13(8).
Submitter First Name	Uchechukwu
Submitter Last Name	Onwunaka
Submission Title	Addressing Fatphobia and Race in Nutrition Counseling for Pre-Clerkship Medical Students
Objective or purpose of innovation	To introduce an anti-racist nutrition counseling framework to medical students.
Background and/or theoretical framework and importance of the field	Fatphobia is at the forefront of social discourse, however current literature and curricula have yet to explore its ties to racism, or its integration into medical education. The Body Mass Index (BMI) has roots in structural racism yet continues to guide nutrition counseling education. While some studies have developed measures to quantify bias against fat people, no studies in the medical literature have examined the role of racism and fatphobia in medicine. Our intervention implemented a curriculum that uses an anti-racist, patient-centered approach to nutrition counseling.
Innovation design	First-year students in a required clinical skills course were assigned a pre-session video examining the history of BMI and its ties to racism and fatphobia. They then participated in a one-hour small group discussion on how this knowledge can inform

	nutrition counseling and practiced counseling using a guide that de-emphasizes the role of the BMI.
Evaluation Plan: methods and measures	Students completed a pre-survey of their knowledge of fatphobia and their confidence in delivering nutrition counseling. After the session, a post-survey reassessed these parameters.
Outcomes	Out of 144 students, 20% of respondents initially agreed that "the BMI has no correlation to one's health", which increased to 49% in the post-survey. 76% of respondents shared that the BMI is "somewhat related to one's health", which decreased to 49%. 75% of students identified that racism has a "significant impact" on society's understanding of weight, health and nutrition, which increased to 88%.
Innovation's strengths and limitations	This innovation offers multiple learning modalities that de-emphasize the BMI and recognize structural barriers that inform nutrition counseling. Its efficacy is limited by faculty knowledge. The pre- and post- results do not capture the long-term impact of the innovation.
Feasibility and transferability	This curriculum provides teaching materials for early and experienced learners that are transferable to other institutions.
References	1. Miller DP, Crandall SJ, Davis S, Ip E, Jamback G, Burns C, Kronner D, Marion G, Spangler JG, Vaden K, Vernon JA, Vitolins MZ. NEW LifeStyle: A Downloadable Teaching and Learning Program for Nutrition, Exercise, and Weight Management. MedEdPORTAL. 2012;8:9256. https://doi.org/10.15766/mep_2374-8265.92562. Wilechansky R, Burgermaster M, Jones D, Seres D. Obesity, Diet, and Exercise Education for the Primary Care Clerkship Using an Articulate Storyline 2 e-Learning Module. MedEdPORTAL. 2016;12:10497. https://doi.org/10.15766/mep_2374-8265.104973. Robinson, B.E., Bacon, L.C. and O'Reilly, J. (1993), Fat phobia: Measuring, understanding, and changing anti-fat attitudes. Int. J. Eat. Disord., 14: 467-480. https://doi.org/10.1002/1098-108X(199312)14:43.0.CO;2-J4. Bacon, J., Scheltema, K. & Robinson, B. Fat phobia scale revisited: the short form. Int J Obes 25, 252–257 (2001). https://doi.org/10.1038/sj.ijo.08015375. Rebecca Puhl, Christopher Wharton, Chelsea Heuer, Weight Bias among Dietetics Students: Implications for Treatment Practices, Journal of the American Dietetic Association, Volume 109, Issue 3, 2009, Pages 438-444, https://doi.org/10.1016/j.jada.2008.11.034.
Submitter First Name	Sandra
Submitter Last Name	Oza
Submission Title	Implementation of a Vignette-Based Physical Examination Assessment for Pre-Clerkship Students
Objective or purpose of innovation	We aimed to implement a novel assessment of pre-clerkship student hypothesis-driven physical examination (HDPE) skills.
Background and/or theoretical framework	When performing a HDPE, learners integrate clinical reasoning skills into the selection of physical examination (PE) maneuvers (1).

and importance of the field	
Innovation design	We developed a brief vignette (chief complaint: shortness of breath). Faculty and senior students' input determined that 15 of the 51 maneuvers on our school's Core PE (2) were most relevant to perform. During the assessment, second year students were given 5 minutes to read the vignette, then 15 minutes to perform on a volunteer the PE maneuvers they deemed relevant. PE faculty observed, scored, and provided feedback after the assessment. Post-assessment, students reflected on their rationale for inclusion or omission of each maneuver.
Evaluation Plan: methods and measures	We calculated descriptive statistics of student performance and reviewed student reflections for themes.
Outcomes	All eligible (186) students completed the assessment. The median number of maneuvers performed was 22 (range 6-47). The high priority maneuvers performed by the greatest number of students were washing hands, measuring vital signs, and auscultating the chest (99% performed); by the least number were inspecting the oropharynx and palpating the liver (39% and 45%, respectively). Post-assessment reflections on omitted high-priority maneuvers revealed gaps in reasoning, e.g. few recognized the importance of palpating the liver of a patient with possible heart failure.
Innovation's strengths and limitations	Strengths of the innovation include that it provided an opportunity for students to practice and receive feedback on a skill that is difficult to teach, and the reflections allowed faculty to easily identify common gaps in reasoning. One limitation is that implementation requires significant faculty involvement.
Feasibility and transferability	This assessment could be easily replicated at another institution or adapted to different levels of learner by modifying the complexity of the vignette and/or evaluation method (e.g. interpretation of abnormal findings, patient counseling).
References	1. Kelly J et al. Implementation of a hypothesis-driven physical exam session in a transition to clerkship program. MedEdPORTAL. 2020; 16:11043. DOI 10.15766/mep_2374-8265.110432. Gowda, D et al. A Core Physical Exam for Medical Students: Results of a National Survey. Acad Med: 2014; 89; DOI 10.1097/ACM.0000000000000137
Submitter First Name	Kristina
Submitter Last Name	Petersen
Submission Title	Measuring the Efficacy of a Three-Year Medical School Disabilities Curriculum
Research Statement/Research Question	To incorporate diversity and inclusion in medical school curricula, a longitudinal disabilities awareness and inclusion curriculum was created. This work evaluates its efficacy across three academic years (AY) and compares first-year student (MS1) to fourth-year student (MS4s) results.
Background and/or	Although work has been done to implement disabilities awareness and inclusion curricula for medical professionals, many barriers often limit their scope. Our

theoretical framework and relevance of the study	longitudinal curriculum, developed specifically for current and future clinicians, addresses disability as diversity.
Design and methods	MS1s (214 in AY 2021-2022 and 209 in AY 2021-2022) participated in four sessions, addressing: apparent and non-apparent disabilities; inclusive language; universal design; bias and stigmatization; and functional limitations, barriers, and accommodations. Additionally, these sessions were delivered to 213 MS4s in AY 2020-2021. In AY 2021-2022, a fifth session on assistive technology was offered to 200 MS3 and 201 MS4 students. Student response data from essays and pre- and post-session questionnaires were analyzed using mixed methods.
Results of data collection and analysis	After the first-year series, students self-reported substantially increased levels of confidence in their ability to: recognize persons with disabilities (PWD) (+440%), identify functional limitations and barriers (+330%) and possible accommodations (+520%), and care for PWD (+140%). Comparable results (+420%, +350%, +530%, +130%, and3.5-fold increase, respectively) were demonstrated amongst MS4s, despite increased clinical exposure. Qualitative analysis of student responses on mitigation of unconscious bias in clinical encounters revealed themes of consciously addressing bias (23%) and avoiding assumptions (30%), creating inclusive environments (26%), partnering with PWD and their families (40%), improving communication (17%), individualizing patient experience (18%), and staying abreast of issues affecting PWD (29%).
Limitations	Analyses indicate that there is a strong benefit to educating medical students on caring for PWD. However, the single-institution, limited sample size hinders elucidation of broader implications.
Conclusions	The curriculum achieved its learning outcomes, is feasibly run by faculty moderators, requires few resources, and is transferable to other institutions.
References	Wells TPE, Byron MA, McMullen SHP, Birchall MA. Disability teaching for medical students: disabled people contribute to curriculum development. Medical Education. 2002;36(8):788-790.Ervin DA, Hennen B, Merrick J, Morad M. Healthcare for Persons with Intellectual and Developmental Disability in the Community. Front Public Health. 2014;2.Sarmiento C, Miller SR, Chang E, Zazove P, Kumagai AK. From Impairment to Empowerment: A Longitudinal Medical School Curriculum on Disabilities. Acad Med. 2016;91(7):954-957.Woodard LJ, Havercamp SM, Zwygart KK, Perkins EA. An Innovative Clerkship Module Focused on Patients With Disabilities. Academic Medicine. 2012;87(4):537-542.Stillman MD, Ankam N, Mallow M, Capron M, Williams S. A survey of internal and family medicine residents: Assessment of disability-specific education and knowledge. Disability and Health Journal. 2021;14(2):101011.Riley B. Curriculum on Developmental Disabilities in Family Medicine Residency. Osteopathic Family Physician. 2022;11(3):30-33. https://ofpjournal.com/index.php/ofp/article/view/592. Accessed May 1, 2022.Benjamin JC, Groner J, Walton J, Noritz G, Gascon GM, Mahan JD. A Blended Curriculum to Improve Resident Physical Exam Skills for Patients With Neuromuscular Disability. MedEdPORTAL. January 2019.Casson I, Abells D, Boyd K, et al. Teaching family medicine residents about care of adults with intellectual and developmental disabilities. Can Fam Physician. 2019;65(Suppl 1):S35-S40.Long-Bellil LM, Robey KL, Graham CL, Minihan PM, Smeltzer SC, Kahn P. Teaching Medical

	Students About Disability: The Use of Standardized Patients. Academic Medicine. 2011;86(9):1163-1170.Symons AB, McGuigan D, Akl EA. A curriculum to teach medical students to care for people with disabilities: development and initial implementation. BMC Med Educ. 2009;9:78.
Submitter First Name	Lawrence
Submitter Last Name	Rosen
Submission Title	Mindfulness and Racial Justice: Tools to Facilitate Challenging Conversations
Objective or purpose of innovation	To integrate mindfulness as a tool to facilitate engagement in conversations about implicit bias and structural racism.
Background and/or theoretical framework and importance of the field	Structural racism is a major determinant of health. Understanding race as social construct and creating implicit bias action plans are key contributors to addressing structural racism in health care. Integrating mindfulness practices in undergraduate medical education contributes to increased awareness of implicit bias and facilitates difficult conversations about how physicians contribute to and can help mitigate the impact of structural racism in health care.
Innovation design	The Human Dimension Course is a three-year longitudinal course based on foundational principles of social determinants of health, including structural racism, as well as professional identity formation learning objectives including awareness and reflective practices. Mindfulness practices were integrated within three large and small group active learning sessions with undergraduate medical students as part of the required HD curriculum in order to facilitate conversations in three sessions related to implicit bias, race as a social construct and structural racism.
Evaluation Plan: methods and measures	Student and faculty quantitative and qualitative feedback
Outcomes	Based on structured student evaluations, 85-95% of students agreed we met learning objectives and that the sessions were effectively taught and facilitated.
Innovation's strengths and limitations	Strengths include full integration of two often unmet critical needs for students in areas with direct impact on SDOH. Limitations include need for skilled faculty with grounding in teaching mindfulness practices and racial justice principles.
Feasibility and transferability	Any undergraduate medical school can adopt this format and often, pieces are already being taught - the integration and faculty facilitation is key.
References	Burgess DJ, Beach MC, Saha S. Mindfulness practice: A promising approach to reducing the effects of clinician implicit bias on patients. Patient Educ Couns. 2017 Feb;100(2):372-376. doi: 10.1016/j.pec.2016.09.005. Epub 2016 Sep 15. PMID: 27665499.Magee, R. V. (2016). Community-engaged mindfulness and social justice: An inquiry and call to action. In Handbook of Mindfulness (pp. 425-439). Springer, Cham.

Submitter First Name	Samantha
Submitter Last Name	Rosenblum
Submission Title	A Longitudinal Program in Narrative Medicine for Trainees in Pediatrics
Objective or purpose of innovation	This curriculum aims to help learners: (1) demonstrate an understanding of narrative medicine, (2) participate in reflective writing and discussion, (3) convey the impact of narrative reflection on clinical and professional performance and (4) build a safe environment for sharing.
Background and/or theoretical framework and importance of the field	Research has supported the inclusion of narrative medicine in pediatrics curricula, however there remain limited examples of successful implementation.1 Narrative medicine will "teach residents to listen and reflect, improve humane and effective communication, promote more meaningful patient interactions, and foster resilience among pediatric residents."2 This curriculum serves to support pediatrics trainees and increase professional fulfillment.
Innovation design	Monthly sessions over one academic year introduce a theme and discussion questions, followed by close reading and a writing exercise.
Evaluation Plan: methods and measures	We utilized surveys that incorporate the Stanford Professional Fulfillment Index questionnaire (SPFI), which includes three composite scales: professional fulfillment, work exhaustion and interpersonal disengagement. The post-intervention survey also asked participants about their experience with sessions.
Outcomes	Using the SPFI, we performed a two-sample t test, treating each survey as an independent sample. The analysis showed improvement on the three domains above. On the post-intervention survey, respondents all chose "very good" or "excellent" when asked about the quality of sessions, and the relevance to residency. 71% of respondents noted the importance of self-reflection. One participant wrote: "They gave me a space to express myself. They helped me find more meaning in medicine."
Innovation's strengths and limitations	The survey responses demonstrated the value of this program. Demanding schedules placed limitations on resident involvement. We addressed this by scheduling sessions during protected didactic time.
Feasibility and transferability	Our curriculum is transferrable to other residencies. The intervention is low-cost and requires engaged faculty, access to readings and allotted didactic time. With this curriculum, other institutions can increase professional fulfillment among residents and foster a culture of reflection within their department.
References	1. "Half as sad: a plea for narrative medicine in pediatric residency training." C. Diorio and M. Nowaczyk. Pediatrics 2019; 143 (1).2. "Stop, look, listen, then breathe: the impact of a narrative medicine curriculum on pediatric residents (descriptive abstract)." Academic Pediatrics 2017; 17 (5): e40-41.
Submitter First Name	Rachel

Submitter Last Name	Stoddard
Submission Title	Responding to Trauma Disclosures on the Wards: A Clinical Skills Teaching Session with a Trauma-Informed Lens
Objective or purpose of innovation	To create a session for pre-clerkship medical students to practice responding to patients' trauma disclosures as a member of an interprofessional care team.
Background and/or theoretical framework and importance of the field	Thirty-four percent of medical students report receiving a trauma disclosure from a patient within the first five months of medical school; however, minimal medical student training exists on how to respond effectively in the moment or involve interprofessional colleagues and support services.
Innovation design	A two-hour session incorporating principles of trauma-informed medical education was co-developed and co-delivered by students and interprofessional trauma experts. After a lecture on responding to trauma disclosures, participants discussed three patient scenarios in small breakout groups, followed by a larger group debrief facilitated by a panel of physicians, social workers, and a senior medical student.
Evaluation Plan: methods and measures	Participating students completed pre- and post-session surveys rating knowledge regarding trauma disclosures and preparation to respond effectively during clinical encounters. Descriptive statistics and risk ratios with corresponding 95% confidence intervals (CIs) were used to compare outcomes before and after the session.
Outcomes	Of 121 participants, 92 (76.0%) completed pre- and 95 (78.5%) completed post-session surveys. After the session, students were 2.8 times as likely (95% CI: 2.1, 3.8) to report feeling prepared to respond to patients' trauma disclosures, 2.3 times as likely (95% CI: 1.7, 3.1) to report feeling prepared to respond independently in the moment, and 6 times as likely to know how to contact an inpatient social worker (95% CI: 2.2, 16.7) compared to before the session.
Innovation's strengths and limitations	Involvement of senior medical students and interprofessional faculty allowed for breadth of perspectives. Limitations included lack of opportunities to practice clinical skills with direct observation with actual or standardized patients.
Feasibility and transferability	This session was implemented within a larger trauma-informed care medical curriculum and required a 1-hour faculty development training and coordination of facilitators from different teaching and clinical backgrounds.
References	Brown, T., Mehta, P. K., Berman, S., McDaniel, K., Radford, C., Lewis-O'Connor, A., Grossman, S., Potter, J., Hirsh, D. A., Woo, B., & Krieger, D. (2021). A Trauma-Informed Approach to the Medical History: Teaching Trauma-Informed Communication Skills to First-Year Medical and Dental Students. MedEdPORTAL : the journal of teaching and learning resources, 17, 11160. https://doi.org/10.15766/mep_2374-8265.11160Brown, T., Berman, S., McDaniel, K., Radford, C., Mehta, P., Potter, J., & Hirsh, D. A. (2021). Trauma-Informed Medical Education (TIME): Advancing Curricular Content and Educational Context. Academic medicine : journal of the Association of American Medical Colleges, 96(5), 661–667. https://doi.org/10.1097/ACM.0000000000003587McClinton, A., & Laurencin, C. T. (2020). Just in TIME: Trauma-Informed Medical Education. Journal of racial and

	ethnic health disparities, 7(6), 1046–1052. https://doi.org/10.1007/s40615-020-00881-w
Submitter First Name	Seiji
Submitter Last Name	Suda
Submission Title	Medical Students' Reflections on Their Experiences in a Trauma Chaplain Shadowing Program
Research Statement/Research Question	In what ways does a trauma chaplain shadowing program enhance medical students' understanding of spirituality and medicine?
Background and/or theoretical framework and relevance of the study	The importance of spirituality in patient care is well recognized and efforts to develop educational opportunities to improve medical students' competency in spirituality and health are ongoing.1-3 In this regard, shadowing of healthcare chaplains has emerged as an experiential approach for providing exposure to and instruction on issues of spirituality in the patient experience and in patient care.4-10 This study provides a qualitative analysis of student reflections following a chaplain shadowing experience at a level 1 trauma center with the goal of characterizing the educational impact of trauma chaplain shadowing.
Design and methods	Qualitative analysis was performed on a total of 90 reflections collected from 2015 through 2019. Through directed content analysis, reflections were coded and grouped together to form specific categories which were compiled into broad themes.
Results of data collection and analysis	Qualitative analysis of the student reflections identified 14 themes which clustered into five broad categories: (i) Insights Regarding Chaplaincy; (ii) The Relational Skills of Chaplains; (iii) Bearing Witness to Suffering; (iv) Growth Toward a Professional Identity; and (v) Recognition of Shortcomings of Medical Education and Clinical Medicine.
Limitations	Student reflections were optional and therefore may have been skewed toward those who had a more impactful experience and/or those who were more comfortable expressing themselves through writing.
Conclusions	Trauma chaplain shadowing can not only enhance students' understanding of various dimensions of spirituality and medicine but also promote the development of a strong physician identity. Shadowing chaplains, particularly trauma chaplains, may be an innovative pedagogical approach for promoting spiritual competency, humanism, and professionalism in medical students given their repertoire of relational and affective skills (empathy, mindfulness, and fostering of presence and connection) that are often challenging to teach through traditional didactic approaches.
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Submitter First Name	Maya
Submitter Last Name	Vasser
Submission Title	Communications Training to Increase Confidence and Comfort Addressing COVID 19 Misinformation Among Medical Students at a Community Health Fair
Objective or purpose of innovation	We taught medical students motivational interviewing (MI) and Ask-Respond-Tell (ARTS) to increase their comfort and confidence addressing COVID-19 misinformation during a community health fair.
Background and/or theoretical framework and importance of the field	The COVID pandemic and affiliated “infodemic” generated widespread health misinformation, confusion and distrust.1 Stakeholders expect providers to competently address health misinformation without bias while preserving cultural/health literacy, equity, and autonomy.2,3,4,5
Innovation design	ARTS6, MI7, and shared decision making8 foster collaborative patient-physician relationships and are fundamental strategies for combating vaccine misinformation9. Community health fairs are innovative venues where rapport, trust, and partnerships facilitating health promotion are built.10
Evaluation Plan: methods and measures	Eleven MS3&4 volunteers received one-hour of role play-based review and training on COVID-19 vaccine information, misconceptions, MI, and ARTS before leading COVID-19 misinformation stations at a community health fair. They received a 15-minute role-play reinforcement by faculty at the health fair site prior to meeting with community members. Students completed pre-/post-training and post-health

	fair questionnaires capturing demographics, prior experience addressing misinformation, comfort with MI/ ARTS, and reflections on “lessons learned.” We conducted Wilcoxon Signed Rank test and thematic analysis on survey and narrative responses, respectively.
Outcomes	Students’ knowledge, skills, comfort, confidence with MI/ARTS, and abilities to discuss COVID-19 science and vaccinations improved as measured by pre-/post-intervention surveys (p0.5) were observed. Students reported increased confidence and ease with delivering COVID-19 recommendations in plain language and exploring patients’ thought processes behind choices.
Innovation’s strengths and limitations	The innovation-health fair experience appears capable of providing substantial impacts on future physicians’ professional development by enhancing their communication skills and abilities to address misinformation during patient encounters. Limitations included small student sample size and a population that was already interested in learning about health.
Feasibility and transferability	Implementation of misinformation education during medical school is feasible. Health fairs are key experiences that provide ample opportunities for community engagement where addressing health misinformation is possible.
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Submitter First Name	Kramer
Submitter Last Name	Wahlberg
Submission Title	Pediatric ACtive Learning Electrocardiography (PACE): Integrating asynchronous remote active learning in pediatric clinical medical education
Objective or purpose of innovation	Develop an asynchronous remote active learning (ARAL) module to address pediatric ECG education gaps identified by medical students at our children's hospital.
Background and/or theoretical framework and importance of the field	ARAL is an emerging adjunct to clinical training, however, pediatric ECG ARAL curricula have not been described.
Innovation design	An interprofessional educational team (medical students, AL experts, cardiologists) developed PACE, an innovative case-based online module that complements in-person clinical training and aligns with pediatric entrustable professional activities (EPAs). PACE includes 31 cases encompassing normal and abnormal pediatric ECG findings, strengthened by interactive pathophysiological and clinical correlates.
Evaluation Plan: methods and measures	We evaluated PACE through assessment of learner satisfaction, EPA comfort, and ECG competency. Fourth-year students in pediatric cardiology or pre-residency bootcamp independently interacted with PACE for 2 weeks. Junior pediatric residents on cardiology elective received usual teaching (control). Learner satisfaction and EPA comfort (Kirkpatrick Level 1) were described using Likert scale (1=strongly disagree, 5=strongly agree). ECG competency (Level 2) was evaluated by multiple-choice exam at baseline, 2, and 10 weeks; mean scores were analyzed by one-way and repeated measures of variance.
Outcomes	Seventeen students and 6 residents utilized PACE. Students reported high mean satisfaction (4.5), feasibility (4.4), and peer recommendation (4.6), with improvement addressing EPAs ($p< 0.001$) and pediatric ECG competencies ($p< 0.001$). ECG test scores improved across time points ($p< 0.001$) for students (20%) and residents (6%), but without significant interaction between groups and time point ($p=0.17$). However, post-hoc pairwise comparisons for students were significant between baseline and follow-ups ($p< 0.0001$).
Innovation's strengths and limitations	This institutional medical education study demonstrates an innovative, feasible, and satisfactory method to deliver ARAL pediatric ECG content during a clinical elective. Improvements in pediatric ECG skill and EPA comfort, with post-hoc analysis indicating knowledge retention, suggests benefit for our target population.
Feasibility and transferability	Further study of PACE would help expand innovative ARAL methodology with clinical teachers, and share ARAL pediatric ECG content with learners.

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Submitter First Name	Yushan
Submitter Last Name	Wang
Submission Title	Physical Exam Pearls and Pitfalls for Fourth-Year Medical Students
Research Statement/Research Question	We designed and implemented self-paced learning modules on maneuvers in the cardiac and pulmonary physical exams (PE) for fourth year medical students to fill in the gaps of in-ward training and ensure all graduating students have a common foundation for residency.
Background and/or theoretical framework and relevance of the study	The existing literature focuses on formal curricula to prepare students for clinical rotations. This is one of the early attempts to build didactic content on physical exams for fourth year students.
Design and methods	We followed the ADDIE instructional design model. The objectives and modules were prepared based on a needs assessment (n = 83) and with input from cardiology and pulmonary specialists. Handouts were developed to summarize key points. 52 students in the classes of 2021 and 2022 completed modules including a pretest, video, handout review sheet, and posttest.
Results of data collection and analysis	For the cardiac PE, there was a significant difference in the scores for pretest (M = 3.8, SD = 1.2) and posttest (M = 5.5, SD = 0.8); $t(55) = -9.9$, $p < 0.001$. For the pulmonary PE, there was a significant difference in the scores for pretest (M = 3.2, SD = 1.1) and posttest (M = 4.9, SD = 0.9); $t(57) = -11.2$, $p < 0.001$. In the post survey, 100% of respondents strongly agree or agree that the module enhanced their preparation for internship. Learners rated the handouts as useful references (1-10 scale), 8.4 for the cardiovascular PE handout and 8.3 for the pulmonary PE handout.
Limitations	The scope is limited to cardiac and pulmonary PEs, and future work will expand the approach developed here to other body systems.
Conclusions	The significant improvement in test results and learner satisfaction suggest the benefit of standardized instruction of PE and clinical skills specific to fourth year medical students. This study also demonstrated the effectiveness of self-paced online learning modules for PE maneuvers.
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Submitter First Name	Marygrace
Submitter Last Name	Zetkulic
Submission Title	Adapting the R2C2 feedback model to “in the moment” feedback and coaching conversations within the clinical learning environment: what works and why?
Research Statement/Research Question	The competing clinical and educational demands on learners and preceptors in the fast paced clinical environment make effective feedback and coaching conversations challenging. This study explored how preceptors and learners could apply an evidence-based model to “in-the-moment” feedback and coaching conversions within the clinical learning environment to identify the factors that improve efficacy.
Background and/or theoretical framework and relevance of the study	Prior research, led to R2C2, an evidence-based, theory-informed reflective model for facilitating performance feedback and coaching. The model includes four phases: 1.Relationship building; 2.exploring Reactions; 3.understanding of Content; and 4.Coaching for change. Research has demonstrated the effectiveness of R2C2 in formal, scheduled meetings. This study explored how the R2C2 model could be utilized in the busy clinical environment where learners and preceptors may have limited or no longitudinal relationship, juggle concurrent responsibilities of education and patient care.
Design and methods	A qualitative design employing framework analysis was utilized with 15 trained preceptor-learner dyads utilizing established approaches to ensuring quality and rigor. Audio recorded transcripts of two feedback sessions and a total of three debriefs with preceptor-learner dyads were examined, focusing on components of the model and factors influencing its effectiveness.
Results of data collection and analysis	The dyads included preceptors (n =13) and residents (n=13) or medical students (n=2) from several disciplines and clinical settings. Conversations had a median length of 11 minutes. Many struggled with the coaching phase including creating action plans and plans for follow-up. Knowledge and coaching skills of the preceptor and the time available were most associated with effective coaching plans.
Limitations	The study took place during the pandemic which posed challenges in recruitment . Dyads was not as broad as anticipated.

Conclusions	R2C2 can be adapted to contexts where in-the-moment feedback conversations take place. Results demonstrated that coaching is a complex communication skill. Applying the principles of experiential learning in preparing preceptors for this phase may ensure co-creation of more effective coaching plans.
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Poster Abstracts

Submitter First Name	Sarah
Submitter Last Name	Abramowitz
Submission Title	Student Perceptions and Use of Routinely Assigned “Pre-work” in Pre-Clerkship Medical Education
Research Statement/Research Question	What is the role of formally assigned learning materials in pre-clerkship medical education?
Background and/or theoretical framework and relevance of the study	Self-directed learning has become an increasingly valued facet of medical education. At the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell (ZSOM), traditional lectures have been replaced by interactive large and small group sessions. Students are routinely assigned “pre-work” consisting of faculty-curated resources and learning objectives to guide their preparation for these sessions. Completion of “pre-work” is known to be inconsistent. As students are encouraged to take a self-directed approach to learning, questions arise regarding the role of formally assigned learning materials.
Design and methods	An anonymous survey including Likert scales and open-ended questions addressing whether and why students use “pre-work” and other materials to prepare for class was distributed to rising second-year ZSOM students. Results were analyzed using descriptive statistics and thematic analysis.
Results of data collection and analysis	The survey yielded a 47% (n=48) response rate. “Pre-work” use varied greatly between individuals and session types. 68% and 45% of respondents reported “never” or “almost never” completing “pre-work" for large group and small group sessions, respectively. However, nearly all respondents described using some strategies/resources to prepare for class, suggesting that “pre-work” completion was not analogous with class preparation. Students preferred general, ‘high-yield’ resources such as Osmosis, Boards and Beyond, and in-house materials over textbook chapters. Some found suggested “pre-work” more valuable for post-session review. The most cited reasons for not completing “pre-work” were deeming it “not a worthwhile use of time” (85%) and being “too busy” (69%).
Limitations	The survey was administered to one class of students from one medical school. Results may also reflect response bias.
Conclusions	Students utilized a wide and individualized range of resources to prepare for class. The assigned “pre-work” materials were more likely to be used when they were perceived to be meaningfully and efficiently calibrated with the corresponding class session.
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Submitter First Name	Silva
Submitter Last Name	Baburyan
Submission Title	Transition to Residency and Life-Long Learning: A Self-Directed Learning Elective in Undergraduate Medical Education
Objective or purpose of innovation	The Health Services Delivery Research Elective (HSDR) aims to facilitate self-directed learning (SDL) skills in senior medical students as they transition to residency.
Background and/or theoretical framework and importance of the field	The American Association of Medical Colleges (AAMC) requires that medical students meet core Entrustable Professional Activities (EPA) for entering residency. SDL is a critical skill that medical trainees must develop to become competent residents and healthcare professionals who can not only form relevant and focused questions but who can also retrieve and analyze reliable evidence to advance patient care which is the focus of EPA 7.
Innovation design	During this 2-week elective, a faculty mentor works with students to help develop their own learning objectives, complete a health services project in the field of their residency interest, write two personal reflections, and complete a course evaluation. Project examples include, but are not limited to, quality improvement, review of guidelines, secondary data set analysis and more. Students are encouraged to complete relevant course work through the Institute of Healthcare Improvement (IHI) and attend seminars.
Evaluation Plan: methods and measures	Quantitative and qualitative assessments were performed. A Likert scale was used in the course completion form and provided quantitative data. Qualitative analysis was conducted of the student reflections to identify common themes.
Outcomes	Eighteen students completed the elective. All students either agreed or strongly agreed that they were satisfied overall with the course and would recommend it to future students. Major themes from student reflections included improving literature reviews, honing time management skills, and developing SDL skills.
Innovation's strengths and limitations	This elective allows students to identify their own weaknesses in the skills necessary for SDL as they write their own learning objectives and complete self-reflection assignments assessing their growth throughout the elective. A limitation of the course is the short length of time that the students have to complete their project.

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Submitter First Name	Karen
Submitter Last Name	Barr
Submission Title	Using the ACGME Clinician Educator Milestones to enhance the curriculum of a Resident Medical Education Track
Objective or purpose of innovation	To use the new ACGME Clinician Educator Milestones within a Clinician Educator Residency track to show resident track participants how these skills can be developed over time, and to inform resident reflection and self-assessment.
Background and/or theoretical framework and importance of the field	The new ACGME clinician educator milestones consist of 18 milestones, each covering a different area of professional development. These were developed for faculty members who teach residents and fellows to assist in their lifelong growth and development as educators. Specialized tracks to train future clinician educators are gaining popularity and the educator milestones describe a trajectory of skill development across different area of professional development in a familiar format, so they may be useful for future clinician educators.
Innovation design	Specific ACGME clinician educator milestones were selected that correlated with track content and discussed
Evaluation Plan: methods and measures	Residents completed pre and post session milestone self-assessment and a short reflection of their learning.
Outcomes	Because the clinician educator milestones were just released, outcome collection is ongoing, and more data will be available for the April meeting. Initial data suggests that track participants feel milestone anchors assist them in their self-assessment, and that track sessions increase resident self-ratings of milestone attainment. Reflections identify areas for current and future growth.
Innovation's strengths and limitations	Strengths: an early example of how the clinician educator milestones may assist in residency training of future clinician educators. Limitations small track size , non-anonymous nature of assessment and reflections may alter content. However, as residents are not evaluated in these areas, this may mitigate a tendency to alter their scores.

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Submitter First Name	Rebecca
Submitter Last Name	Barron
Submission Title	A Novel Case-Based Module on Blood and Body Fluid Exposures for Emergency Medicine Residents
Objective or purpose of innovation	To improve emergency medicine (EM) residents' care of patients with blood and body fluid (BBF) exposures.
Background and/or theoretical framework and importance of the field	BBF exposures are common and associated with risk of blood-borne infections. Emergency clinicians often treat patients seeking medical care for these exposures. While most emergency clinicians recognize the importance of providing care for this patient population, few feel comfortable doing so, and high-quality care for these patients is often lacking.
Innovation design	We developed and will evaluate a BBF exposure educational module for EM residents delivered in hour-long sessions during our institution's weekly EM resident didactic conference. Through case-based, small-group discussion, we addressed learning objectives including identifying resources to care for this population, ordering appropriate laboratory tests, determining whether post-exposure prophylaxis is indicated, and referring for follow-up.
Evaluation Plan: methods and measures	We will develop a brief pre- and post-module survey that includes multiple-choice questions (MCQ) to assess resident knowledge as well as Likert-scale items to address resident attitudes towards providing care for this patient population. We

	will administer this survey immediately before and after the session. We will also administer this survey to residents who do not attend the session.
Outcomes	We will evaluate the impact of the module by comparing results of the pre-/post-survey within and between intervention and control groups. We will used paired T-tests to conduct our analyses.
Innovation's strengths and limitations	Our module will provide an essential but undervalued component of the EM residency didactic curriculum. This intervention has the potential to improve care for patients presenting with BBF exposures, though measurement of the intervention's direct effects on patient care may be difficult.
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Submitter First Name	Miya
Submitter Last Name	Bernson-Leung
Submission Title	Pediatric Stroke Champions: A Flipped-Classroom, Project-Based, Longitudinal Course Empowering Learners to Maximize the Impact of Continuing Education
Objective or purpose of innovation	Stroke in children is uncommon, but causes significant disability. Diagnosis and treatment are often delayed or missed due to lack of knowledge or systemic response capacity. Traditional one-time, lecture-based continuing education courses are poorly suited to fostering the knowledge retention and dissemination, or individual and systemic practice change, needed to improve care for low-frequency but high-acuity disorders. The "Pediatric Stroke Champions" CME/CPD course was designed to empower participants as "champions" for pediatric stroke care at their home institutions.
Background and/or theoretical framework and importance of the field	Frameworks for this novel course design included adult learning theory, project-based and experiential learning, and Moore's conceptual framework for planning and assessing learning in continuing education activities.
Innovation design	"Pediatric Stroke Champions" used a flipped-classroom, blended online format. Prework included self-assessment, goalsetting, and identification of an educational

	or clinical project. The live workshop included case-based discussions and a practice panel. Matched faculty experts and co-learners provided consultation on participants' projects. Post-work included knowledge questions, reflection exercises, and project updates.
Evaluation Plan: methods and measures	We used a Logic Model approach with quantitative and qualitative measures of participation, acceptance, and individual outputs and outcomes.
Outcomes	100% of respondents felt the course at least somewhat helped them meet their individual goals for participation, and 86% at least somewhat carried out their commitment-to-change statements between the workshop and end of the course. Project updates included practice changes, collaboration across stakeholders to create stroke response pathways, and education of colleagues.
Innovation's strengths and limitations	This course demonstrates successful implementation of CME/CPD designed to empower participants to disseminate knowledge and practice changes to their institutions. The pilot's small scope limits outcome data; however, this "train the trainer" model intends to maximize the impact of even a small course. Course material development was time-intensive. Future offerings will permit further study and return on initial investment.
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Submitter First Name	Theresa
Submitter Last Name	Bingemann
Submission Title	Examining implicit mindsets of continuous learners in an Allergy, Immunology and Rheumatology divisions at an academic medical center
Research Statement/Research Question	Before introducing a faculty development program, we wanted to assess baseline mindset regarding intelligence from faculty, advanced practice providers and fellows involved in education.
Background and/or theoretical framework and relevance of the study	Competency-based medical education requires frequent assessment of learners. Faculty mindsets have implications for the learners they supervise and assess especially in the area of the type of feedback provided. Understanding baseline educator mindsets can help shape the manner in which faculty development content is developed and presented. Before introducing a faculty development program, we wanted to assess baseline educator mindset data regarding intelligence along the

	growth(GM) to fixed mindset(FM) spectrum using the Dweck Mindset Instrument (DMI).
Design and methods	All faculty, advanced practice providers and fellows from the divisions of Allergy, Immunology and Rheumatology, Pediatric Allergy and Immunology and Pediatric Rheumatology were asked to complete a survey, which included the DMI regarding intelligence. N&#3f45
Results of data collection and analysis	The DMI for intelligence includes 8 statements that are rated on a Likert scale from 1(strongly agree) to 6(strongly disagree). 28/45(62%) members completed a survey in REDCap assessing demographics and mindset. The DMI mean score was 3.9 with standard deviation of 0.6 and range 3-4.75. 14/28(50%) participants had a GM(score 4-6), 12/28(43%) had an indeterminate mindset(score between 3.1-3.9), while 2/28(7%) had FM(score between 1-3).
Limitations	GM was assessed in only one cognitive domain. This data is from one institution and the sample size is small. Assessing other domains can provide important information as the results may differ.
Conclusions	Although GM is discussed frequently in medical education, there is very little data regarding mindsets exists in this group. Among our group in the domain of intelligence, only half the group endorsed a GM suggesting that education regarding GM may be beneficial. Further study is needed regarding implicit mindsets across a variety of domains.
References	N. E. Pal, M. Young, D. Danoff, L. H. Plotnick, B.-A. Cummings, C. Gomez-Garibello & V. Dory (2020) Teachers' mindsets in medical education: A pilot survey of clinicalsupervisors, Medical Teacher, 42:3, 291-298, DOI: 10.1080/0142159X.2019.1679359
Submitter First Name	Christina
Submitter Last Name	Briscoe Abath
Submission Title	Building the future of clinician educators: Development of the Boston Children's Hospital Neurology and Neurodevelopmental Medical Education Pathway
Objective or purpose of innovation	To develop an innovative medical education pathway (MEP) to promote scholarship and career development for future clinician-educators and leaders within the neurology residency program at Boston Children's Hospital (BCH). Unique to the development of our MEP was involvement of resident physicians as the primary drivers at each stage of pathway development.
Background and/or theoretical framework and importance of the field	Created in 2019, the MEP consisted of informal opportunities to engage in BCH initiatives. Without organized meetings or centralized resources, many residents became aware of opportunities in their last year of training, limiting ability to develop skills and/or projects.
Innovation design	Residents within the program partnered with program leadership to complete an informal needs assessment and subsequent anonymous survey, which identified need for standardization, regular meetings, and integration into earlier training

	years. Together, we developed a Logic Model to support training of residents as medical education teachers, scholars, and future leaders.
Evaluation Plan: methods and measures	Ongoing measures of outcomes include resident engagement in pathway, participation in medical education opportunities, number of active resident medical education projects, and annual mixed-methods anonymous feedback from participating residents.
Outcomes	Sixteen 16 of 22 residents (72%) and 4 (5%) faculty members are MEP participants. Since January 2022, 8 meetings held included project workshops, journal club, and invited speakers. There are 17 active projects spearheaded by residents. Four residents participated in the Harvard Macy Course.
Innovation's strengths and limitations	Collaboration between residents and program leadership to develop the pathway ensured the pathway logistics and contents were aligned with learner needs, leading to high levels of engagement. Transition of leadership and ongoing adjustments to meet new needs will be necessary to ensure ongoing engagement.
References	Chen, H. Carrie, et al. "The health professions education pathway: preparing students, residents, and fellows to become future educators." Teaching and learning in medicine 29.2 (2017): 216-227. Kaufman, D. M., and Karen V. Mann. "Teaching and learning in medical education: how theory can inform practice." Swanwick T. Understanding Medical Education: Evidence, Theory and Practice. 2nd. Oxford: Wiley Blackwell (2014): P7-29 Schwartzstein, Richard M., et al. "The Harvard medical school pathways curriculum: Reimagining developmentally appropriate medical education for contemporary learners." Academic Medicine 95.11 (2020): 1687-1695.Van Melle, E. (2016). Using a logic model to assist in the planning, implementation, and evaluation of educational programs. Academic Medicine, 91(10), 1464.
Submitter First Name	Jennifer
Submitter Last Name	Carey
Submission Title	Curriculum Integration Using a Longitudinal Patient Approach
Objective or purpose of innovation	Medical schools are increasingly emphasizing longitudinal integrated curricula in a shift towards an outcome-oriented education. The Lancet Commission Report endorses the development of curricula to serve patient and population needs, improve understanding in clinical contexts, and emphasize continuous care over episodic encounters. While the first two years of the undergraduate medical curriculum is often divided into units based on organ system or anatomical location, finding connections between units to address the above recommendations is essential for educational leaders.
Background and/or theoretical framework and importance of the field	We develop several "Longitudinal Patients" that reappear throughout the first two years of coursework. This integrative teaching method allows students to follow theoretical patients to illustrate the interplay between organ systems, disease states, and social determinants of health (SDoH). Sessions introduce new topics, consolidate material previously covered, and provide an opportunity for students to gain greater perspective on clinical and social concepts in medicine.

Innovation design	The “Longitudinal Patient” sessions focus on integration across units and intentional redundancy of high-yield concepts. The patient’s experience of health and illness are viewed periodically in the curriculum through the lens of continuity of care and SDoH.
Evaluation Plan: methods and measures	At the completion of each academic year, students will be queried regarding their experiences with the “Longitudinal Patient” sessions using a Likert scale system and open-ended questions to allow for both quantitative and qualitative analysis.
Outcomes	Our primary outcome is patient development and integration across units. Our secondary outcome is quantitative and qualitative feedback from learners.
Innovation’s strengths and limitations	The strength of this innovation is its integrated, longitudinal nature. Limitations include the ability to create cases that will be sufficiently memorable to students to maintain effective long-term recall.
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Submitter First Name	Jennifer
Submitter Last Name	Carey
Submission Title	Optimizing Group Size in Medical Education Simulation
Research Statement/Research Question	Simulation is a popular teaching and learning tool in medical education. However, there no standards regarding learner group size. This study aims to identify best practices for number of learners per group during simulation.
Background and/or theoretical framework and relevance of the study	Simulation is a valuable and effective teaching method and strategy for learning, demonstrating improvements in learner competence and confidence. Although lower instructor to learner ratios are ideal, larger groups can maximize efficiency while minimizing simulation costs. Thus, optimizing group size balances maximizing efficiency without sacrificing efficacy.
Design and methods	Using the framework described by Cook and West, a systematic review was conducted using the search terms simulation, medical education, and group size in the following databases: MEDLINE, Embase, Cochrane, Pubmed, Web of Science, MedEd Portal and Google Scholar.
Results of data	33 articles were identified during initial screening. Of those, 15 were determined relevant and underwent full-text review with standardized data extraction. Studies

collection and analysis	were a combination of prospective review, retrospective review, mixed methods, and randomized controlled trials. Smaller groups improved learner outcomes; ideal size was specifically dependent upon learning objective. (1) Five studies showed group size up to 4 is ideal, with conflicting reports regarding any difference among groups of 2, 3 or 4 learners. (2-6) Another study found 6 to be the ideal group size. (7) Debriefing can be done in larger groups while procedural skills are optimally taught in groups of 2-4 students. (8-10)
Limitations	There are a limited number of studies directly comparing group size. Among available studies, various types of simulation and learning outcomes were measured. Different definitions of small and large were used among studies.
Conclusions	Smaller group size has benefits when assessing efficiency, knowledge and confidence. Group sizes can range from 2-6, with decreasing effectiveness in larger groups. It is important to note that when simulating procedural skills, smaller groups of 2 to 4 may have increased benefits.
References	1. Hensel, D., and Ball, S. (2013). The effects of group size on outcomes in high-risk, maternal-newborn simulations. IU ScholarsWorks. Retrieved from https://scholarworks.iu.edu/dspace/handle/2022/17201 Accessed September 20222. Rezmer J, Begaz T, Treat R, Tews M. Impact of group size on the effectiveness of a resuscitation simulation curriculum for medical students. Teach Learn Med. 2011 Jul-Sep;23(3):251-5. 3. Gentry, J. W. (1980). Group Size and Attitudes Toward the Simulation Experience. Simulation & Games, 11(4), 451–460.4. Sondheim SE, Devlin J, Seward WH 4th, Bernard AW, Feinn RS, Cone DC. Recording Out-of-Hospital Cardiac Arrest Treatment via a Mobile Smartphone Application: A Feasibility Simulation Study. Prehosp Emerg Care. 2019 Mar-Apr;23(2):284-289.5. Noerholk LM, Morcke AM, Kulasegaram K, Nørgaard LN, Harmsen L, Andreasen LA, Pedersen NG, Johnsson V, Vamadevan A, Tolsgaard MG. Does group size matter during collaborative skills learning? A randomised study. Med Educ. 2022 Jun;56(6):680-689. Epub 2022 Mar 16. 6. Mahling M, Münch A, Schenk S, Volkert S, Rein A, Teichner U, Piontek P, Haffner L, Heine D, Manger A, Reutershan J, Rosenberger P, 7. Herrmann-Werner A, Zipfel S, Celebi N. Basic life support is effectively taught in groups of three, five and eight medical students: a prospective, randomized study. BMC Med Educ. 2014 Sep 6;14:185.7. Nabecker S, Huwendiek S, Theiler L, Huber M, Petrowski K, Greif R. The effective group size for teaching cardiopulmonary resuscitation skills - A randomized controlled simulation trial. Resuscitation. 2021 Aug;165:77-82.8. Cho Y, Je S, Yoon YS, Roh HR, Chang C, Kang H, Lim T. The effect of peer-group size on the delivery of feedback in basic life support refresher training: a cluster randomized controlled trial. BMC Med Educ. 2016 Jul 4;16:167. 9. Dubrowski, A. and MacRae, H. (2006), Randomised, controlled study investigating the optimal instructor: student ratios for teaching suturing skills. Medical Education, 40: 59-63. 10. Owen H, Plummer JL. Improving learning of a clinical skill: the first year's experience of teaching endotracheal intubation in a clinical simulation facility. Med Educ. 2002 Jul;36(7):635-42.
Submitter First Name	Aaron
Submitter Last Name	Chen

Submission Title	New Insights in Module Based Learning Experiences for High Value Care
Objective or purpose of innovation	The NIMBLE (New Insights in Module Based Learning Experiences) for High Value Care (HVC) curriculum introduces principles of HVC to complement clinical judgement training in medical school clerkships. NIMBLE features short interactive learning modules to augment didactic sessions, revealing to students the financial costs of their management plan in a simulated case. These modules provide foundation for understanding the significant role providers play in reducing medical overuse.
Background and/or theoretical framework and importance of the field	U.S. healthcare waste by overuse is estimated to cost $760-935 million annually(1), which increase patients' risk of harm, cost of care, and system strain. HVC seeks to reduce overuse while maintaining the highest quality of care. HVC education is currently sparse in medical school, with lack of time and curricular materials most cited by clerkship directors as barriers to implementation(2). It is vital to address this gap in cost-of-care education, and as few as three modules have been shown to increase HVC awareness and influence clinical reasoning(3).
Innovation design	NIMBLE presents case studies in the Medicine, OBGYN, and Neurology clerkships where students are asked to generate a diagnostic plan. A pre-populated order sheet calculates the total cost to the uninsured patient as tests are selected. Subsequent discussions include an introduction to HVC with comparison to an evidence-based management plan.
Evaluation Plan: methods and measures	136 clerkship students will receive the NIMBLE HVC curriculum. The validated Maastricht High Value, Cost Conscious Care Attitude Questionnaire (MHAQ)(4) will be collected at the start and conclusion of clerkships, along with self-reported perceptions of HVC.
Outcomes	Implemented, results to be collected/presented.
Innovation's strengths and limitations	NIMBLE exposes students to real-life healthcare costs and emphasizes responsibility of the physician in determining both the quality and ultimate cost-of-care. Limitations include a limited discussion of HVC best practices and the role of health insurance due to a dense curriculum.
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Submitter First Name	Carlos
Submitter Last Name	Echeverria
Submission Title	Empowering Medical Students to Practice High-Value Care
Objective or purpose of innovation	Objectives: 1) assess medical students' understanding, attitudes, and perceptions of high-value care, 2) implement/evaluate curricular interventions highlightingvalue-based care in pre-clinical medical education and 3) use Transformative Learning Theory to evaluate efficacy.
Background and/or theoretical framework and importance of the field	National organizations like the Choosing Wisely campaign have brought together providers and trainees to promote the practice of High Value Care (HVC). Indeed, HVC is becoming recognized as an essential component of a physician's training; however, the majority of current HVC teaching is implemented at the post-graduate level. Transformative Learning Theory will be used to evaluate how medical students' attitudes and perceptions around HVC were affected by curricular interventions.
Innovation design	The primary innovative component of this project involved the development of a "Becoming a Value Detective" activity in 2nd pre-clinical year. This is a 2-hour session during a weekly course that provided students a space in a small-group setting to share written reflections about their clinical experiences observing high/low-value care. This is innovated because so little time is spent on HVC in preclinical years.
Evaluation Plan: methods and measures	Longitudinal assignment with prompt that asked students to actively identify additional examples of high- and low-value care during their own biweekly clinical (MeSH) experiences during the year.
Outcomes	Outcomes in this study: qualitative analysis of essay responses detailing medical students' attitudes, perceptions, and understanding of value-based medicine before and after the development of the longitudinal "Value Detective" activity, and quantitative and qualitative survey data on feedback from the curricular event implemented for both the Classes of 2024 and 2025. Quantitative data will be in the form of Likert-based survey scores.
Innovation's strengths and limitations	Strengths: minimal cost, broad, adaptability; easy to maintain annually Limitations: lack of a robust quantitative approach to evaluating efficacy
References	1. Patel MS, Reed DA, Loertscher L, McDonald FS, Arora VM. (2014). Teaching residents to provide cost-conscious care: A national survey of residency program directors. JAMA Intern Med., 174, 470–472.2. Sedrak MS, Patel MS, Ziemba JB, Murray D, Kim EJ, Dine CJ, Myers JS. (2016). Residents' self-report on why they order perceived unnecessary inpatient laboratory tests. J Hosp Med. 11(12), 869-872. doi: 10.1002/jhm.2645.3. Courtenay BC, Merriam SB, Reeves PM. (1998). The Centrality of Meaning-Making in Transformational Learning: How HIV-Positive Adults Make Sense of their Lives. Adult Education Quarterly. 48(2), 65-84.

Submitter First Name	Nicola
Submitter Last Name	Feldman
Submission Title	Student Perspectives on a Medical School Curriculum Redesign
Research Statement/Research Question	To determine the priorities and concerns of students in the redesign of a medical school's curriculum.
Background and/or theoretical framework and relevance of the study	Many U.S. medical schools have recently embarked on significant curricular revisions. Several common priorities have emerged in this process, including integration of foundational and clinical sciences, use of active learning methods, and individualization of training. However, these curricular concerns are generally reported by educators, overlooking an important perspective: that of students. As the population experiencing the curriculum firsthand, students may provide valuable insight into how curricula should be reformed. This study aims to elucidate students' priorities around curricular redesign as the Icahn School of Medicine at Mount Sinai (ISMMS) re-envisions its curriculum.
Design and methods	Feedback on ISMMS's curriculum redesign was elicited from current ISMMS students via multiple methods (see Results). Qualitative comments from students were transcribed and coded thematically using framework analysis.
Results of data collection and analysis	26 students participated via Q&A sessions (n=11 students), focus groups (n=3), discussions with student affinity groups (n=6), an online form (n=2), and emails to a designated student representative (n=4). Qualitative analysis showed 3 major thematic concerns from students: 1) teaching and learning strategies (n=33 comments) e.g., specifics of active learning methods, degree of interaction with faculty; 2) general curricular structure (n=24) e.g., transitions and vacations between courses, opportunities for a 3-year MD pathway; and 3) assessment (n=22) e.g., flexibility in timing of exams, use of standardized exams.
Limitations	Because participation was voluntary, results should not be interpreted as representative of an entire student body. Additionally, student priorities likely differ between schools, so themes at ISMMS may not be generalizable to other schools.
Conclusions	Students express certain priorities in redesigning a medical school's curriculum, which may differ from educators' priorities. At ISMMS, student concerns centered around specific teaching strategies, general curricular structure, and assessment rather than the integration and individualization concerns reported by educators in the literature.
References	1. Pock AR, Durning SJ, Gilliland WR, Pangaro LN. Post-Carnegie II curricular reform: a north American survey of emerging trends & challenges. BMC Med Educ. 2019;19(1):260. Published 2019 Jul 12. doi:10.1186/s12909-019-1680-12. Novak DA, Hallowell R, Ben-Ari R, Elliott D. A Continuum of Innovation: Curricular Renewal Strategies in Undergraduate Medical Education, 2010-2018. Acad Med. 2019;94(11S Association of American Medical Colleges Learn Serve Lead: Proceedings of the 58th Annual Research in Medical Education Sessions):S79-S85. doi:10.1097/ACM.00000000000029093. Heiman HL, O'Brien CL, Curry RH, et al. Description and Early Outcomes of a Comprehensive Curriculum Redesign at the

	Northwestern University Feinberg School of Medicine. Acad Med. 2018;93(4):593-599. doi:10.1097/ACM.0000000000019334. Schwartzstein RM, Dienstag JL, King RW, et al. The Harvard Medical School Pathways Curriculum: Reimagining Developmentally Appropriate Medical Education for Contemporary Learners. Acad Med. 2020;95(11):1687-1695. doi:10.1097/ACM.0000000000032705. Daniel M, Morrison G, Hauer KE, et al. Strategies From 11 U.S. Medical Schools for Integrating Basic Science Into Core Clerkships. Acad Med. 2021;96(8):1125-1130. doi:10.1097/ACM.0000000000039086. Brauer DG, Ferguson KJ. The integrated curriculum in medical education: AMEE Guide No. 96. Med Teach. 2015;37(4):312-322. doi:10.3109/0142159X.2014.9709987. Koles PG, Stolfi A, Borges NJ, Nelson S, Parmelee DX. The impact of team-based learning on medical students' academic performance. Acad Med. 2010;85(11):1739-1745. doi:10.1097/ACM.0b013e3181f52bed8. Krupat E, Richards JB, Sullivan AM, Fleenor TJ Jr, Schwartzstein RM. Assessing the Effectiveness of Case-Based Collaborative Learning via Randomized Controlled Trial. Acad Med. 2016;91(5):723-729. doi:10.1097/ACM.0000000000010049. Schumacher DJ, Englander R, Carraccio C. Developing the master learner: applying learning theory to the learner, the teacher, and the learning environment. Acad Med. 2013;88(11):1635-1645. doi:10.1097/ACM.0b013e3182a6e8f8
Submitter First Name	Allison
Submitter Last Name	Forrest
Submission Title	Senior Resident Grand Rounds: Results From a Survey of 15 Years of Radiology Residency Graduates
Objective or purpose of innovation	Radiology residents in their final year of training at our institution are required to deliver a grand rounds presentation prior to graduation in order to facilitate resident involvement in the medical tradition of ground rounds. We evaluated this requirement by conducting a survey of recent residency alumni on their experience delivering grand rounds and its perceived value in radiology training.
Background and/or theoretical framework and importance of the field	Grand rounds presentations are a long-held tradition in the field of medicine, although residents are often passive participants. There is no published evaluation of resident involvement in grand rounds.
Innovation design	Grand rounds are presented by residents to the entire radiology department with faculty support. The presentations are similar to a typical grand rounds.
Evaluation Plan: methods and measures	We developed an anonymous, 10-question survey regarding the alumni experience with the grand rounds presentation requirement, which has been required since 2007. Question formats included yes-or-no and five-point Likert-type formats, as well as a space to provide comments.
Outcomes	Eighty-three alumni were contacted and 39 responded (46.9% response rate). Current practice setting was academic in 41.0%, 46.2% have reused material from their presentation, and 46.2% have given a grand rounds presentation since

	completing residency. The results of this survey of radiology resident alumni show the majority of respondents agree or strongly agree their grand rounds presentation experience was valuable and would recommend future residents to continue this process.
Innovation's strengths and limitations	The main strength of the innovation is in providing residents the opportunity to demonstrate mastery of a radiology topic, the ability to repurpose presentation material in the future, and the experience of delivering a formal presentation. Limitations include that this is one time experience and could be more significant if there was more longitudinal involvement.
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Submitter First Name	William
Submitter Last Name	Fuller
Submission Title	A Transitions Curriculum to Improve Student Perception of Preparedness for the Clinical Learning Environment
Objective or purpose of innovation	To improve student self-perception of preparedness for the clinical learning environment through a dedicated transitions curriculum implemented in the semester prior to the start of clinical rotations.
Background and/or theoretical framework	The transition from classroom to clinic offers unique opportunities to encourage professional identity formation and to improve student perception of preparedness.

and importance of the field	
Innovation design	This was a pragmatic implementation of a low-stakes transitions curriculum comprised of mixed teaching modalities: simulation, didactic lectures, workshops, and procedure labs. Stated curricular goals included increasing student self-perceptions of preparedness, decreasing associated anxiety, and increasing student comfort in the clinical learning environment.
Evaluation Plan: methods and measures	In addition to standard curricular assessment by students, questions were included evaluating student anxiety regarding the transition to clinical settings and its underlying causes.
Outcomes	Student evaluations were favorable for the course (3.38/4), and student comments highlighted the usefulness of dedicated time for preparing for the transition. Qualitative comments underscored that student anxiety regarding the transition to clinical learning environment was driven by uncertainty around the social dynamics of the clinical environment, fear of failure, and concerns over the subjectivity/fairness of the clinical evaluations used in grading.
Innovation's strengths and limitations	Curricular strengths included representation from each of the main clinical clerkships, with content developed by faculty, house staff, and senior students in response to a call from course directors. Students expressed concerns that some discipline-specific sessions were presented too far in advance of their time on that specific clerkship to be memorable.
References	Lamb S, Rajasekaran SK. Facilitating effective transitions along the medical education continuum: a handbook for learners and faculty derived from corporate coaching. AMA. 2021; . 21-583110Atherley A, Dolmans D, Hu W, Hegazi I, Alexander S, Teunissen PW. Beyond the struggles: a scoping review on the transition to undergraduate clinical training. Med Educ [Internet] 2019;53(6):559–70. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/medu.13883Sa J, Strand P, Hawthorne K, Da Silva A, Kitto S. Transitions in medical education: filling in the blanks. Educacion Medica. 2021. Available from: https://doi.org/10.1016/j.edumed.2021.07.001.
Submitter First Name	Anjali
Submitter Last Name	Gupta
Submission Title	Proposing System Solutions to Improve Population Health through Capstone - An Innovative Medical Student Project/Curriculum Reflecting Synthesis of Longitudinal Teaching on Social Determinants of Health.
Objective or purpose of innovation	To provide students with skills necessary to recognize how social determinants of health (SDOH) adversely impact health outcomes and develop systems solutions.
Background and/or theoretical framework	Community Based Medical Education and service learning are effective to teach students the impact of SDOH.(1,2,3) Our curriculum goes further and provides students opportunity to develop knowledge/skills needed to engage in systems changes.

and importance of the field	
Innovation design	Three year longitudinal course required by all students. SDOH knowledge is taught via experiential/community based learning during pre-clinical and clinical rotations. Course culminates in Capstone, where students use knowledge learned to design a solution. Students are in small groups with a facilitator. There are detailed milestones distributed over a year which include: write-up of case where they have witnessed how SDOH impacts outcomes; research to identify the gap/problem; engaging experts, community partners, and system stakeholders. There are multiple sessions where students critically reflect on process either 1:1 with facilitator or in small groups with peers. Students are required to present a poster reflecting process and systems solution, and choose either presentation to stakeholder, publication, or drafting an IRB for future research.
Evaluation Plan: methods and measures	Facilitators use specific grading rubrics to monitor completion of milestones and final project. Community partners evaluate students. Students evaluate course/facilitators.
Outcomes	All graduates presented posters reflecting knowledge of how to approach change in systems. Many have initiated systemic change. Examples: -Discussions at state level: 1)for addition of bus line 2)making helmets mandatory while riding line scooters. -Task force to eliminate use of race- based GFR. -Development of LGBTQ curriculum for hospital network.
Innovation's strengths and limitations	Capstone is required for all students. Significant protected time is given to their projects.(4) This model is resulting in systemic change in our communities and health systems. Challenges include faculty time, recruitment and development.(5)
References	1. Khazanchi R, Keeler H, Strong S, Lyden ER, Davis P, Grant BK, Marcelin JR. Building structural competency through community engagement. Clin Teach. 2021 Oct;18(5):535-541. doi: 10.1111/tct.13399. Epub 2021 Jul 18. PMID: 34278725.2. Wong CK, Berens PM, Katta MV, Lie M, Fall D, Shah A, Deen S, Joshi M, Keenahan L, Appelbaum N, Huynh PB, Poythress EL. From education to action: Development and evaluation of a student-directed service learning program. Med Teach. 2022 May;44(5):541-545. doi: 10.1080/0142159X.2021.2005242. Epub 2021 Nov 22. PMID: 34808073.3. Gonzalo JD, Thompson BM, Haidet P, Mann K, Wolpaw DR. A Constructive Reframing of Student Roles and Systems Learning in Medical Education Using a Communities of Practice Lens. Acad Med. 2017 Dec;92(12):1687-1694. doi: 10.1097/ACM.0000000000001778. PMID: 28640036.4. Lewis JH, Lage OG, Grant BK, Rajasekaran SK, Gemeda M, Like RC, Santen S, Dekhtyar M. Addressing the Social Determinants of Health in Undergraduate Medical Education Curricula: A Survey Report. Adv Med Educ Pract. 2020 May 22;11:369-377. doi: 10.2147/AMEP.S243827. PMID: 32547288; PMCID: PMC7250290.5. Bann, Maralyssa MD1; Larimore, Savannah PhD2; Wheeler, Jessica3; Olsen, Lauren D. PhD4. Implementing a Social Determinants of Health Curriculum in Undergraduate Medical Education: A Qualitative Analysis of Faculty Experience. Academic Medicine: November 2022 - Volume 97 - Issue 11 - p 1665-1672 doi: 10.1097/ACM.0000000000004804

Submitter First Name	Deepak
Submitter Last Name	Gupta
Submission Title	Development and Pilot Implementation of “Technological, Regulatory and Financial aspects of Clinical (TEREFIC) Practice” curriculum in Graduate Medical Education.
Research Statement/Research Question	To develop a pragmatic curriculum, titled Technological, Regulatory and Financial aspects of Clinical (TEREFIC) Practice, for training physicians.
Background and/or theoretical framework and relevance of the study	Clinical practice in the United States has grown increasingly cumbersome, and physicians today face ever-increasing technological demands, regulatory measures and financial complexity. In parallel, clinician burnout has risen to an alarming level and is still rising for both in-training and practicing physicians. Many of the risk factors which lead to physician burnout are influenced by the lack of training and consequent incompetency of our trainees and graduates in effective handling of the TEREFIC practice. Of note, there is no formal curriculum for training and empowering physicians in such practical aspects of clinical practice.
Design and methods	We aimed to develop pragmatic curriculum by selecting topics impacting physicians in real-world clinical practice in both ambulatory and hospital settings, irrespective of the specialty. The curriculum consisted of 3 lectures delivered in a half-day session in June 2021 and June 2022. Participants included a total of 11 unique neurology resident physicians from the University of Vermont Medical Center. These participants took a paper-based pre- and post-test (twenty questions) and filled in a five questions survey at the end on a voluntary and anonymous basis.
Results of data collection and analysis	There was a significant increase in post-test scores compared to post-test scores (mean change 7.273, standard deviation 3.101, two-sided p-value < 0.001, Paired Samples test). Survey results indicated a positive perception of the course by participants.
Limitations	This study had a small sample size, which was an inherent limitation of it being a pilot study.
Conclusions	This study generated preliminary findings to support the feasibility of developing a curriculum to address the unmet needs of graduate medical education training in TEREFIC practice.
References	None
Submitter First Name	David
Submitter Last Name	Hatem
Submission Title	Laying a Strong Foundation: How Do Medical Schools with and without Learning Communities Promote Character, Caring and Professional Identity Formation During Students' Pre- Clerkship Years?
Research Statement/Research Question	How do learning communities (LC)and other key medical school experiences foster Professioinal Identity Formation and promote character development in the pre-clerkship years of medical school?

Background and/or theoretical framework and relevance of the study	Professional Identity Formation (PIF) is a core goal of medical education.1 Limited empiric studies describe PIF outcomes and influences. Building on our 4 school fourth year medical student study of LCs and PIF, our current study investigates PIF in pre-clerkship years of medical school.
Design and methods	We surveyed students just prior to starting clerkships at 7 geographically diverse medical schools, 5 with and 2 without LCs to examine different models for fostering PIF. Our open response survey, built from our prior semi-structured interview study, asked students for their perspectives on the influence of care/caring and character development, the role of LC and non-LC factors, as well as current events that may influence PIF. We developed a codebook using an iterative process by team members. Using Dedoose, we coded surveys and developed themes using the constant comparative method of qualitative data analysis.
Results of data collection and analysis	Preliminary data analysis of our 256 responses (28% of 929 students) suggest that students describe differing degrees of integration of a new professional identity with their personal identity, depending on exposure to patient care experiences, role models, meaningful discussion of values in medicine, congruence or tension between personal and professional values and with varying degrees of support from their school, peers or personal network. The role of LCs will be analyzed.
Limitations	While this is the largest known data set in a multi-institutional study, response rate of 28% may not mitigate bias. Preliminary data analysis is incomplete yet will be substantially advanced when presented.
Conclusions	PIF can be fostered in pre-clerkship students. Meaningful experiences that expose students to role models, patient care experiences and reflection offer opportunities to promote care, character development and PIF in pre-clerkship medical students.
References	1. Cooke M, Irby DM, O'Brien BM. Educating Physicians: A Call for Reform of Medical Education and Residency. San Francisco: Jossey-Bass, 20102. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. Acad Med. 2015;90(6):718-725. doi:10.1097/ACM.0000000000007003. Kalet A, Buckvar-Keltz L, Hamik V, et al. Measuring professional identity formation early in medical school. Med Teach. 2017;39(3):255-261. doi:10.1080/0142159X.2017.12704374. Hatem DS, Halpin T. Becoming Doctors: Examining Student Narratives to Understand the Process of Professional Identity Formation Within a Leaming Community. J Med Educ Currie Dev. 2019;6:2382120519834546. Published 2019 Mar 26.doi:10. ll 77/23821205198345465. Kalet A, Buckvar-Keltz L, Monson V,, et al. Professional Identity Formation in medical school: One measure reflects changes during pre-clerkship training. MedEdPublish, 2018;7(1): 41, https://doi.org/10.15694/mep.2018.0000041.1 6. Carey GB, Curlin FA, Yoon JD. Medical student opinions on character development in medical education: a national survey. BMC Res Notes. 2015;8:455. Published 2015 Sep 18. doi:10.1186/s13104-015-1434-z
Submitter First Name	Amara

Submitter Last Name	Heard
Submission Title	Delivery Room Educational Bundle to Increase Level of Confidence among Pediatric Residents
Research Statement/Research Question	We hypothesized that implementing an educational bundle including a checklist, skills sessions, and knowledge about EPA 10, would improve resident confidence in the delivery room.
Background and/or theoretical framework and relevance of the study	Newborn resuscitation and stabilization are skills pediatric residents learn during residency. Entrustable Professional Activities (EPAs) are being utilized more to determine levels of supervision required during progression through training. In our institution residents have fewer neonatal intensive care unit (NICU) rotations, negatively impacting knowledge, skills, and attitudes about delivery room attendance.
Design and methods	We administered a baseline survey to pediatric residents to assess confidence with preparation, knowledge, skills, and communication in the delivery room. They were also asked about familiarity with EPA 10 (Resuscitate, Initiate Stabilization of the Patient, and Then Triage to Align Care with Severity of Illness). Residents will all participate in the educational bundle, followed by administration of the same survey.
Results of data collection and analysis	20 pediatric residents were sent the baseline survey in October 2022. Seven surveys have been returned (35%). Over a third of the residents had no skill or knowledge rated very or extremely confident and just under a third only had one question answered very or extremely confident. Out of the 7, all but one had been in the delivery room within the past 3 months. One resident left this question blank. Regarding NICU rotations, none of the PGY-1 have completed a rotation. Most residents were unfamiliar with EPA 10 and levels of entrustment. Four out of 7 (57%), plan to work in primary care pediatrics.
Limitations	We are still undergoing data collection which could ultimately shift our current outcomes.
Conclusions	Data collection is ongoing. Preliminary responses support our hypothesis that decreased delivery room experience has led to lower resident confidence. We anticipate that our intervention will increase confidence and skills, to further prepare residents for independent practice.
References	Kane, S. K., & Lorant, D. E. (2018). The amount of supervision trainees receive during neonatal resuscitation is variable and often dependent on subjective criteria. Journal of Perinatology, 38(8), 1081–1086. https://doi.org/10.1038/s41372-018-0137-4 Schumacher, D. J., West, D. C., Schwartz, A., Li, S.-T., Millstein, L., Griego, E. C., Turner, T., Herman, B. E., Englander, R., Hemond, J., Hudson, V., Newhall, L., McNeal Trice, K., Baughn, J., Giudice, E., Famiglietti, H., Tolentino, J., Gifford, K., & Carraccio, C. (2020). Longitudinal assessment of resident performance using entrustable professional activities. JAMA Network Open, 3(1). https://doi.org/10.1001/jamanetworkopen.2019.19316
Submitter First Name	Abigail

Submitter Last Name	Hielscher
Submission Title	CT Imaging in the Anatomy Lab
Objective or purpose of innovation	Is there an academic advantage that first-year medical students gain from learning cross-sectional anatomy on scans of their own cadaver versus a different cadaver, or from living individuals?
Background and/or theoretical framework and importance of the field	Competency in radiology is an essential skill for graduating physicians1. At our institution, imaging instruction is delivered via asynchronous modules. To improve medical students' competency in imaging, we incorporated post-mortem and normal CT scans into the anatomy lab. While others have used post-mortem CT imaging in anatomy2,3, none to our knowledge have compared it with scans from living individuals or made DICOM viewers available at each student table.
Innovation design	1. CT scans were uploaded on Pacsbin, a web-based DICOM viewer, accessible to each student table in the anatomy lab through use of an iPad. 2. Radiology residents assisted students with the use of Pacsbin and identification of structures in lab. 3. An e-module was provided instructing students how to utilize common DICOM features.
Evaluation Plan: methods and measures	Four cadavers were scanned using a Philips iCt 128 CT scanner. Students viewed images of the chest, abdomen and pelvis. Students from the three CT study groups will be assessed on: 1. Performance on anatomy laboratory exams. 2. Ability to correctly identify structures on cross-sectional images. 3. Ability to correctly identify anatomical spatial relationships. 4. Perceptions of anatomical, pathological and imaging knowledge. Results will be weighed based on prior student anatomical and imaging experience.
Outcomes	Informing curricular practices related to the incorporation of CT imaging in anatomy.
Innovation's strengths and limitations	Strengths: Availability of scans in the anatomy lab and the use of iPads to view scans. Limitations: Time and resources needed to obtain scans and label images. Inability to label images on iPads during lab.
References	1Kondo and Swerdlow. Medical student radiology curriculum: what skills do residency program directors believe are essential for medical students to attain? Radiology Education. 2013: 20: 263-271.2Lufler RS, Zumwalt AC, Romney CA, et al. Incorporating radiology into medical gross anatomy: does the use of cadaver CT scans improve students' academic performance in anatomy? Anatomical Sciences Education. 2010. 3:56-63.3Paech D, Giesel FL, Unterhinninghofen R et al. Cadaver-specific CT scans visualized at the dissection table combined with virtual dissection tables improve learning performance in general gross anatomy. European Radiology. 2017. 27: 2153-2160.
Submitter First Name	Naomi
Submitter Last Name	Hodde

Submission Title	What's in the Secret Sauce? Investigating and Designing Interprofessional Education Best Practices for Serious Illness Communication Trainings
Objective or purpose of innovation	This project seeks to investigate best practices in interprofessional education in serious illness communication trainings and identify facilitation behaviors and course curricular elements to increase inclusive and equitable learning environments for all disciplines.
Background and/or theoretical framework and importance of the field	Training clinicians in serious illness communication skills has been shown to increase the likelihood of goal concordant, high-quality care. There is ample evidence to support the impact of communication skills training, but there remains a gap on how to create an inclusive and collaborative learning environment with small groups composed of professionals from varied disciplines.
Innovation design	This is a mixed methods study aimed at understanding the perspective of learners from diverse backgrounds and clinical expertise when participating in the TalkVermont serious illness communication training. We used survey and focus groups to gather data from course graduates. Participants included: nurses, physicians, nurse practitioners, physician assistants, social workers, case managers, child life specialists, and chaplains
Evaluation Plan: methods and measures	Our project included a participant survey eliciting experience and comfort with interprofessional competencies. We conducted five focus groups. Our interview guide centered on opinions and insights into learner experiences. Following resultant curriculum changes, we intend to resurvey our course participants.
Outcomes	Our study involved TalkVermont graduates of nine disciplines. Initial review of survey data reveals that updating case introductions for role play will improve the inclusivity of our course. Qualitative analysis of focus group transcripts is currently ongoing and will be available within the next two months.
Innovation's strengths and limitations	Strengths include the diversity of professions and varied clinical experience of participants. Limitations include that participants were self-selected. Additionally, the course structure of TalkVermont has varied over time (virtual vs in person, facilitator training, etc.), therefore, learning experiences were not uniform.
References	Bernacki, R.E. and S.D. Block, Communication about serious illness care goals: a review and synthesis of best practices. JAMA Intern Med, 2014. 174(12): p. 1994-2003. Back, A.L., E.K. Fromme, and D.E. Meier, Training Clinicians with Communication Skills Needed to Match MedicalTreatments to Patient Values. J Am Geriatr Soc, 2019. 67(S2): p. S435-s441. Fox, L., et al., Teaching interprofessional teamwork skills to health professional students: A scoping review. J Interprof Care, 2018. 32(2): p. 127-135. Guraya, S.Y. and H. Barr, The effectiveness of interprofessional education in healthcare: A systematic review and meta-analysis. Kaohsiung J Med Sci, 2018. 34(3): p. 160-165. Owen, J.A. and M.H. Schmitt, Integrating interprofessional education into continuing education: a planning process for continuing interprofessional education programs. J Contin Educ Health Prof, 2013. 33(2): p. 109-17.
Submitter First Name	Nadia

Submitter Last Name	Kianfar
Submission Title	Educational Video Series About Family Planning and Abortion for Preclinical Medical Students
Research Statement/Research Question	Creating a standardized resource for pre-clerkship medical students to develop a foundational knowledge in the topics of family planning and abortion prior to their obstetrics/gynecology clerkships.
Background and/or theoretical framework and relevance of the study	Medical schools may choose not to teach students about family planning and abortion because there are no defined requirements to cover these topics as part of the mandatory curriculum, despite how commonly they are seen in practice [1]. However, this does not necessarily reflect students' desire to learn more about these topics. Of the students that are introduced to these topics in their pre-clinical studies, many find the information helpful and would recommend the curriculum to other students [2]. Some efforts by students have been made to address gaps in within their own institution's curriculum regarding abortion and family planning in the form of a sexual health elective, but there is scarce literature describing a student-designed resource for abortion/family planning curriculum that is widely available across institutions [3].
Design and methods	Creation of a standardized curriculum of ten videos with associated resource guides based on learning objectives constructed by the Association of Professors in Obstetrics and Gynecology (APGO), an association committed to excellence in educating future women's healthcare providers available for free online. Pre-clerkship and clerkship students were surveyed after reviewing a sample of the course.
Results of data collection and analysis	After completing the educational video series, 86% of students surveyed agreed that the content of the series should be part of a required pre-clerkship curriculum, and 79% of clerkship students surveyed reported they would have benefitted from this curriculum prior to their obstetrics/gynecology clerkship.
Limitations	Students were surveyed at a single institution in a state without laws prohibiting abortion access.
Conclusions	Students desire family planning and abortion to be part of their curriculum and value foundational knowledge in the topics of family planning and abortion prior to their clerkships.
References	1. Espey, E., Ogburn, T., Leeman, L., Nguyen, T., & Gill, G. (2008). Abortion education in the medical curriculum: a survey of student attitudes. Contraception, 77(3), 205–208. doi: 10.1016/j.contraception.2007.11.0112. Guiahi, M., Maguire, K., Ripp, Z. T., Goodman, R. W., & Kenton, K. (2011). Perceptions of family planning and abortion education at a faith-based medical school. Contraception, 84(5), 520–524. doi: 10.1016/j.contraception.2011.03.0033. Caro-Bruce, E., Schoenfeld, E., Nothnagle, M., & Taylor, J. (2006). Addressing gaps in abortion education: a sexual health elective created by medical students. Medical Teacher, 28(3), 244–247. doi: 10.1080/01421590600711203
Submitter First Name	Julianne

Submitter Last Name	Kleitsch
Submission Title	The Pandemic as the Ultimate Disruptor of Constructive Alignment in an Outcomes-Based Medical Education Discipline
Research Statement/Research Question	In this study, we seek to describe the impact of disrupting constructive alignment in the gross anatomy curriculum.[1]
Background and/or theoretical framework and relevance of the study	Due to the COVID-19 pandemic, the COM 2023 experienced varying combinations of teaching modality and assessment during AY 2019/2020. A16-month anatomy curriculum provided an unprecedented opportunity to compare in a single medical school class student performance and perception of pairing different teaching/learning approaches with different assessment styles.[1,2] No prior evidence-based data are published.
Design and methods	In Fall 2019, 208 COM 2023 students learned and were assessed in one anatomic region (Unit 1) with an in-person cadaver-based curriculum. In 2020 these students learned another anatomic region (Unit 3) with an in-person cadaver-based curriculum but were assessed online due to the pandemic lockdown. Constructive alignment was re-established with instruction and assessment being virtual for Unit 4. COM 2023 performance on assessments was compared to COM 2022 and 2021 who experienced an in-person anatomy curriculum with dissection in the same sequence. ANOVA analysis was used to compare the performances across classes. A retrospective questionnaire was distributed to understand COM 2023 students' attitudes toward the disruption in alignment.
Results of data collection and analysis	Difference in performance between Units 1 and 3 was significantly greater in COM 2023 than COM 2022 and 2021($p< 0.01$). Once constructive alignment was re-established, the COM 2023 outperformed COM 2022 and 2021($p<.001$, $p=.002$). Despite excellent performance, students criticized virtual examinations. Fifty-six percent of students completed an online survey, with 72.0% saying it was harder to recognize structures on the digital exam than on body donors.
Limitations	Limitations of our study include its retrospective nature and single institution.
Conclusions	When alignment was disrupted, performance declined, and students felt assessments didn't reflect what they were intended to learn. When alignment was re-established, performance improved. This study emphasizes the importance of aligning instruction and assessment formatting/content to optimize both perception of learning and performance.
References	1. Longhurst GJ, Stone DM, Dulohery K, Scully D, Campbell T, Smith CF. Strength, Weakness, Opportunity, Threat (SWOT) Analysis of the Adaptations to Anatomical Education in the United Kingdom and Republic of Ireland in Response to the Covid-19 Pandemic. Anat Sci Educ. 2020 May;13(3):301-311. doi: 10.1002/ase.1967. Epub 2020 May 9. PMID: 32306550; PMCID: PMC7264742.2. Biggs, J., & Tang, C. (2011). Teaching for quality learning at university. McGraw-Hill.
Submitter First Name	Abigail
Submitter Last Name	Konopasky

Submission Title	On Being Heard: How Black Authors in Medical Education Name Experiences with Racism
Research Statement/Research Question	How do Black authors describe racist experiences within white medical spaces?
Background and/or theoretical framework and relevance of the study	Black individuals training and practicing in medicine face racism, but naming racism risks "becoming the problem you bring" (1,p.147). Medical institutions are supposed to heal, so pointing to the harm done can be perceived as attacking. Naming racism, then, "is to risk not being heard" (1,p.156). Yet, recently more Black voices have been sharing their experiences (2-8). This study examines the discursive tools (9) they use to be published and heard.
Design and methods	We searched four databases for articles related to racism in healthcare, limiting results to types like commentaries and editorials. We screened 332 articles, excluding empirical studies and those in which authors were not Black physicians or physician trainees, did not discuss personal experiences, or were outside the U.S. Drawing on Ahmed's theorisation of institutional racism (1), at least two authors coded each article for (a) rhetorical strategies, (b) presentation of self, and (c) repair strategies in the final paragraphs.
Results of data collection and analysis	First, authors in the 28 articles appeal to readers using emotion, sharing how they "grapple" (2) with "pain" (3), referencing the recent pain of COVID and police brutality (4). But they also ground their voices in academic discourse, frequently citing statistics, published articles, and respected organizations (e.g., AAMC, CDC, Yale; 5-8). Second, authors shifted self presentation, with "we" sometimes signifying Black targets of racism and sometimes Blacks and whites responsible for racism and change. Third, authors avoided becoming the problem by ending hopefully, signaling a brighter future.
Limitations	Our focus on published articles excludes many Black voices, including those who may find ways to be heard locally.
Conclusions	While medical education publishing is hearing more Black physicians and trainees, these white spaces demand significant discursive work.
References	1. Ahmed S. On being included. Duke University Press; 2012.2. Owusu-Akyaw K. The forward movement: Amplifying Black voices on race and orthopaedics—It's time to talk about race in sports medicine. Clinical Orthopaedics and Related Research. 2021 Apr;479(4):671.3. Mezu-Ndubuisi OJ. Unmasking Systemic Racism and Unconscious Bias in Medical Workplaces: A Call to Servant Leadership. Journal of the American Heart Association. 2021 Apr 6;10(7):e018845.4. Vince RA. Eradicating racial injustice in medicine—if not now, when? JAMA. 2020 Aug 4;324(5):451-2.5. Flagg CA, Liu MF. The work is just beginning—racism in medicine. Otolaryngologic Clinics of North America. 2021 Feb 1;54(1):239-45.6. Parker CB. Black in American Medicine: An Early-Career Psychiatrist's Journey to Stand Against Disparities. The American Journal of Geriatric Psychiatry. 2020 Aug 1;28(8):881-5.7. Adams SY, Davis TW, Lechner BE. Perspectives on Race and Medicine in the NICU. Pediatrics. 2021 Mar 1;147(3).8. Williams DR, Walker VP. Curating Anger and Anguish Into Determination and Devotion: Black Women Faculty as Mentors in Medicine. Academic Pediatrics. 2021 Mar 1;21(2):191-3.9. Fairclough N. Analysing discourse: Textual analysis for social research. Psychology Press; 2003.

Submitter First Name	Olivia
Submitter Last Name	Kozel
Submission Title	Closing the Gap in Sexual Education in American Medical Schools
Research Statement/Research Question	Given the array of residents' educational experiences, it is important to assess how residents perceive discussing sexual health with patients and if their own educational backgrounds prepared them accordingly.
Background and/or theoretical framework and relevance of the study	A 2011 Swiss study reported only 40.5% of respondents had ever had a conversation with their physician about their sexual health, with one in five having been asked about sexually-transmitted infections (STIs), sexual partners, or sexual orientation. In the United States, only thirty states require that sexual education is taught in public schools. With this knowledge, our study poses to evaluate the perceptions of residents in regard to sexual health at a single institution.
Design and methods	A twelve-question survey was crafted using the Likert scale model and distributed to residents in Internal Medicine, Pediatrics, Internal Medicine-Pediatrics, Family Medicine, Obstetrics and Gynecology, General Surgery, and Urology.
Results of data collection and analysis	42 residents completed the survey from all represented specialties. 73.8% agreed it is important for physicians to have a strong understanding of sexual health, despite one's specialty. However, 57% also broadly disagreed they had ever completed a sexual education course prior to medical school, with 88% broadly agreeing that medical school had prepared them to answer patient questions on these topics.
Limitations	Our small sample size and single institution perspective imply our results cannot be generalized to all residents across the United States. However, it is the hope that this project can be adapted on a larger scale to continue discussion surrounding this topic.
Conclusions	Diversity of exposure to sexual education can affect medical trainees at all levels. In our study, residents of all specialties valued communicating with patients on topics related to sexual health, while also identifying deficits in their own educational experiences and offering perspectives about how medical school education can be modified to better educate on these topics.
References	Meystre-Agustoni G, Jeannin A, de Heller K, Pécoud A, Bodenmann P, Dubois-Arber F. Talking about sexuality with the physician: are patients receiving what they wish?. Swiss Med Wkly. 2011;141:w13178. Published 2011 Mar 8. doi:10.4414/smw.2011.13178Coleman E, Elders J, Satcher D, Shindel A, Parish S, Kenagy G, Bayer CR, Knudson G, Kingsberg S, Clayton A, Lunn MR, Goldsmith E, Tsai P, Light A. Summit on medical school education in sexual health: report of an expert consultation. J Sex Med. 2013 Apr;10(4):924-38. doi: 10.1111/jsm.12142. PMID: 23551542.Coleman E. Sexual health education in medical school: a comprehensive curriculum. Virtual Mentor. 2014 Nov 1;16(11):903-8. doi: 10.1001/virtualmentor.2014.16.11.medu1-1411. PMID: 25397650.National Conference of State Legislatures, 2020, State Policies on Sex Education in Schools, www.ncsl.org/research/health/state-policies-on-sex-education-in-schools.aspx.

Submitter First Name	Emily
Submitter Last Name	Lisco
Submission Title	Preventative Opt-Out Wellness Check-Ins: Identifying and Supporting At-Risk Residents and Mitigating Burnout
Objective or purpose of innovation	The purpose of preventative wellness check-ins for residents is to encourage them to reflect on individual signs of burnout and develop an action plan to cope; identify and support residents who may be struggling with mental health; and remind residents of available services.
Background and/or theoretical framework and importance of the field	Residents are more likely to report burnout and depression compared to others in the same age group and with similar education level. Accordingly, ACGME emphasizes the importance of well-being in residency programs.
Innovation design	Internal medicine interns and PGY2-4 neurology residents were scheduled for an optional, virtual, 30-minute check-in during designated time off during the work day. Residents were asked to identify personal signs of burnout, reflect on coping skills, and consider when to reach out for professional help. They were encouraged to ask questions and discuss barriers they might perceive in getting help. If appropriate, intake appointments were made during the visit. Afterward, all residents were emailed resources and a voluntary survey.
Evaluation Plan: methods and measures	60.5% of residents (46/76) participated in the program. Of those, 23.9% (11/46) scheduled an intake. 8 residents responded to the post-visit survey.
Outcomes	When asked if the check-in was helpful: 5 strongly agreed, 2 agreed, and 1 disagreed. When asked if they would recommend to their peers: 7 said yes, 1 said no. Comments expressed appreciation for the check-in and recommended continuing and expanding the program into other departments.
Innovation's strengths and limitations	Currently, the unfunded pilot is expanding, and some departments decided to fund the program for their residents due to positive feedback. Strengths include low time commitment, appointments conveniently scheduled, ability to opt in or out, and a personalized conversation about wellness for residents. Financial support and program buy-in are potential limitations moving forward.
References	Accreditation Council for Graduate Medical Education (ACGME). (2022, July 1). ACGME Common Program Requirements (Residency). https://www.acgme.org/what-we-do/accreditation/common-program-requirements/Broxterman, J., Jobe, A., Altenhofen, D., & Eck, L. (2019). Promoting resident well-being through programmatic scheduled wellness consultation. Journal of General Internal Medicine, 34(5), 659-661. https://doi.org/10.1007/s11606-019-04877-zDyrbye, L. N., West, C. P., Satele, D., Boone, S., Tan, L., Sloan, J., & Shanafelt, T. D. (2014). Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population. Journal of Academic Medicine, 89(3), 443-451. https://doi.org/10.1097/ACM.0000000000000134Major, A.,

	Williams, J. G., McGuire, W. C., Floyd, E., & Chacko, K. (2021). Removing barriers: A confidential opt-out mental health pilot program for internal medicine interns. Journal of Academic Medicine, 96(5), 686-689. https://doi.org/10.1097/ACM.0000000000003965
Submitter First Name	Karen
Submitter Last Name	Lounsbury
Submission Title	Integrated Metabolic Maps as a Framework for Teaching Biochemical Pathways in the Preclinical Medical Curriculum
Objective or purpose of innovation	The goal of this innovation was to create a visual framework for metabolic pathways that would better connect specific biochemical concepts with clinical impacts, resulting in improved educational satisfaction and academic performance in the preclinical medical curriculum.
Background and/or theoretical framework and importance of the field	The Larner College of Medicine (LCOM) has steadily transitioned to primarily active learning-based instruction. Although evaluations praise the session formats, students often highlight difficulties in synthesizing preparatory materials for integrated topics such as biochemistry and metabolism. A student/faculty collaboration led to the development of interactive metabolic maps that illustrate pathways and link to a broader framework of metabolism.
Innovation design	Session materials were reviewed, and relevant biochemical pathways identified. For each pathway, a fillable visual diagram was created to showcase the interactions between all substrates, enzymes, and cofactors; a larger comprehensive diagram integrated the pathways together.
Evaluation Plan: methods and measures	Metabolic maps were implemented for first-year medical students in Fall, 2022. Evaluations of the session materials (Likert scale and qualitative comments) were obtained from 64 students and compared with evaluations from the previous two years.
Outcomes	Student ratings of session materials were significantly improved (3.2±1.04 to 4.3±0.87, p0.05), and additional performance data is being collected.
Innovation's strengths and limitations	The implementation of integrated metabolic maps improved student satisfaction, and other outcomes are being monitored. Limitations include confounding factors related to student population differences and other simultaneous curriculum changes.
References	1. Eissa, S., Sallam, R.M., Moustafa, A.S. et al. Large-scale application of case-based learning for teaching medical biochemistry: a challenging experience with positive impacts. Innov Educ 2020; 2, 1.2. Versteeg, M., van Blankenstein, F.M., Putter, H. et al. Peer instruction improves comprehension and transfer of physiological concepts: a randomized comparison with self-explanation. Adv in Health Sci Educ 2019; 24, 151–165.
Submitter First Name	Wei-Hsin
Submitter Last Name	Lu

Submission Title	The Impact of Clinical Exposure During the COVID-19 Pandemic on Medical Students' Specialty Career Choices
Research Statement/Research Question	This study explored medical students' concerns of future burnout, changes in perception of the field of medicine, subsequent changes in medical specialty choice as a result of the pandemic, as well as job-defining factors after having experience an unprecedented and altered medical school experience due to COVID-19.1
Background and/or theoretical framework and relevance of the study	The COVID-19 pandemic has had a tremendous impact on the healthcare workforce, which has been largely negative. It has strained the psychologic and mental well-being of the healthcare workforce leading to exhaustion, decreased job satisfaction, and significant job turnover. Medical students, particularly those on clinical rotations, were subjected to this environment as a part of their education. This leads to the concern that they also were subjected to sharing a similar experience which in turn can have long-term workforce consequences.2
Design and methods	A cross-sectional study was conducted through an anonymous survey. Data was analyzed using Chi-squared and Fisher's exact test analyses to determine statistical significance ($p< 0.05$).
Results of data collection and analysis	Pre-clerkship students (MS1s/MS2s) were more likely to consider non-frontline fields (63.7% vs. 53.8%, p=.04) compared with clinical students (MS3s/MS4s). Both groups had a significant portion who shared a negative outlook on medicine, with a greater effect on clinical students (55.6% vs 45.5%, p=0.15). However, there was no change in perception of a student's chosen field (p=.37). The majority of students feared future career burnout (71.7% & 65.9%) and indicated that work-life balance, clinical schedules, and exposure to hazardous conditions were among the top three job-defining factors.
Limitations	Conducted at a single institution.
Conclusions	The COVID-19 pandemic has had an impact on medical students in-training. There appears to be apprehension towards frontline fields and concerns of career outlook and longevity, which resonates with the current climate of the healthcare workforce. Although unclear if this will be a lasting effect, more acknowledgment of these issues during medical school training may be beneficial.
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Submitter First Name	Sijia
Submitter Last Name	Ma
Submission Title	Diagnostic Errors in Preclinical Medical Students
Research Statement/Research Question	The purpose of this study was to determine the most common cognitive errors leading to misdiagnoses in preclinical medical students at the Renaissance School of Medicine (RSOM).

Background and/or theoretical framework and relevance of the study	Diagnostic errors are a major contributor to medical errors, thus heavily impacting patient health [1, 2]. Although there have been studies analyzing the etiology of diagnostic errors in physicians, similar studies conducted in medical schools have been more limited.
Design and methods	A total of 137 second year medical students participated in two standardized patient (SP) encounters during their practice Objective Standardized Clinical Examination (OSCE). Students interviewed and performed physical exams on the SPs and subsequently completed a post-encounter exercise. During the exercise, students had to provide 3 differential diagnoses with justifications. Misdiagnoses were identified, and their corresponding explanations were reviewed qualitatively to determine the cognitive cause of the error. These were categorized according to criteria established by Graber et al. [3] by two separate investigators.
Results of data collection and analysis	Of the 822 total diagnoses, 297 were misdiagnoses (36%). The most prevalent error was faulty context generalization (173, 58.2%). When considering each case separately, Case 1 had 91 total misdiagnoses: overestimation/underestimation (45.05%), faulty context generalization (39.56%), cluelessness (6.59%), faulty triggering (5.49%), and misidentification (3.30%). Case 2 had 206 total misdiagnoses: faulty context generalization (66.50%), overestimation/underestimation (24.27%), cluelessness (5.34%), and faulty triggering (3.88%).
Limitations	This study is limited by its small sample size. Data from more classes and/or medical schools will need to be analyzed to determine the generalizability of these conclusions.
Conclusions	Overall, students were more likely to make faulty context generalization errors in complex cases, and overestimation/underestimation errors in simpler cases. By determining the most common types of errors made by students, educational interventions can be implemented to improve clinical reasoning and decrease future errors.
References	[1] Graber, M. L. (2013). The incidence of diagnostic error in medicine. BMJ quality & safety, 22 (Suppl 2), ii21-ii27.[2] Schwartz, A., & Elstein, A. S. (2008). Clinical reasoning in medicine. Clinical reasoning in the health professions, 3, 223-234.[3] Graber, M. L., Franklin, N., & Gordon, R. (2005). Diagnostic error in internal medicine. Archives of internal medicine, 165(13), 1493-1499.[4] Braun, L.T., et al., Diagnostic errors by medical students: results of a prospective qualitative study. BMC Med Educ, 2017. 17(1): p. 191.
Submitter First Name	Mary
Submitter Last Name	Mahoney
Submission Title	A Novel USMLE® Based Approach to Introducing the Specialty and Principles of Radiation Oncology to Preclinical Medical Students
Research Statement/Research Question	The Efficacy of A USMLE® Step 1 Content Based Approach to Introducing Radiation Oncology Principles to Preclinical Medical Students

Background and/or theoretical framework and relevance of the study	There is an absence of standardized Radiation Oncology (RO) exposure for American medical students [1,2]. This is alarming given the projected doubling of cancer incidence by 2050 [3,4] alongside declining RO residency applications [5]. Leveraging the principles of Knowles' Adult Learning Theory [6], we present a novel strategy to implement a RO lecture for preclinical students through discussion of relevant United States Medical Licensing Exam® (USMLE®) Step 1 content.
Design and methods	A 1-hour lecture was delivered by a Radiation Oncologist with content derived from the USMLE® content outline [7] and other published study guides [8,9]. Student evaluations of teaching assessed student perception [10]. Student performance on 3 multiple-choice questions was compared to historical item performance. Individual student performance on an ionizing radiation exposure question was captured before (pretest) and after (posttest) the lecture.
Results of data collection and analysis	Student percepted the lecture positively. No improvement in radiation biology question performance was found between this class and historical cohorts. A difference in ionizing radiation exposure question performance was detected with current students scoring 76% correctly compared to historical scoring 57% correctly. There was a statistically significant improvement ($p < .05$) on the ionizing radiation question performance from 39% (pretest) to 76% (posttest), with 70 more individual students answering correctly.
Limitations	Attendance of this lecture and its evaluation completion was optional.
Conclusions	These findings suggest that a USMLE® approach to a formalized RO introduction may be an effective implementation strategy for adult learners while simultaneously improving performance on relevant board-style questions. This approach also expands the stakeholders for RO educational innovations outside of the specialty by providing a powerful incentive for curriculum implementation. Other underrepresented specialties can adapt this approach to increase awareness while also improving student performance on relevant USMLE® material.
References	[1] Dennis KE, Duncan G. Radiation oncology in undergraduate medical education: a literature review. Int J Radiat Oncol Biol Phys. 2010;76(3):649-655. doi:10.1016/j.ijrobp.2009.08.038 [2] Zaorsky NG, Shaikh T, Handorf, E, Eastwick, G, Hesney A, Scher ED, Jones RT, Showalter TN, Avkshtol V, Rice SR, Horwitz EM, & Meyer JE. What Are Medical Students in the United States Learning About Radiation Oncology? Results of a Multi-Institutional Survey. Int J Radiat Oncol Biol Phys. 2016; 94(2): 235–242. doi.org/10.1016/j.ijrobp.2015.10.008[3] Cancer Facts & Figures 2022. American Cancer Society; 2022.[4] Weir HK, Thompson TD, Stewart SL, White MC. Cancer Incidence Projections in the United States Between 2015 and 2050. Prev Chronic Dis 2021;18:210006. doi.:10.5888/pcd18.210006.[5] Goodman CR, Sim AJ, Jeans EB, et al. No Longer a Match: Trends in Radiation Oncology National Resident Matching Program (NRMP) Data from 2010-2020 and Comparison Across Specialties. Int J Radiat Oncol Biol Phys. 2021;110(2):278-287. doi:10.1016/j.ijrobp.2021.03.006[6] Knowles MS. Andragogy in action. 1st ed. San Franciso: Jossey-Bass Inc Pub; 1984.[7] USMLE® Content Outline. Federation of State Medical Boards of the United States Inc. (FSMB) and National Board of Medical Examiners (NBME). 2022. [8] Le T, Bhushan V, Sochat M, et al. First Aid for the USMLE Step 1 2022 32th Edition. McGraw Hill; 2022.[9] Sattar HA. Fundamentals of Pathology: Medical Course and Step 1 Review. Chicago, IL: Pathoma LLC; 2021.[10]

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Submitter First Name	Davina
Submitter Last Name	Matinho
Submission Title	The Association Between Empathy, Artistic Background, and OSCE Performance in Medical Students
Research Statement/Research Question	We assessed the relationship between medical students' engagement in arts, self-perceived empathy, and standardized patients' ratings of students during an OSCE.
Background and/or theoretical framework and relevance of the study	Empathy is a valuable quality in the medical profession correlated with patient satisfaction and clinical outcomes, however, it is difficult to teach and decreases during medical education [1,2,3]. Medical humanities can foster observational skills and has been shown to improve medical students' empathy [4,5,6]. OSCEs, objective structured clinical examinations, are utilized in schools to assess communication skills, and self-perceived empathy has been correlated with patient perceived empathy and OSCE scores [7,8,9].
Design and methods	This study was IRB approved and permission was obtained to use the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE) and the Jefferson Scale of Physician Empathy (JSPE). We developed a Qualtrics survey containing the JSPE and questions regarding students' artistic backgrounds and engagement. Frank H. Netter MD School of Medicine first and second-year students were offered a $5 gift card to complete the survey and underwent an OSCE as part of their curriculum. Standardized patients evaluated empathy using the JSPPPE and communication using the Master Interview Rating Scale (MIRS).
Results of data collection and analysis	49 students completed the survey: 28 first and 20 second year students (1 unspecified), 34 with an artistic background and 12 without (3 unspecified). There were no significant differences between students with an artistic background and students without one on the JSPPPE or MIRS scores. There was a statistically significant (p=.029) positive correlation (r=.364) between hours engaged in arts during medical school and JSPPPE score.
Limitations	Our sample size was small, unevenly distributed, and limited by a narrow range of OSCE scores.
Conclusions	Students who spent more hours engaged in arts tended to receive higher empathy scores from standardized patients. Future studies should investigate interventions to promote art engagement during medical school to improve empathy.
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Submitter First Name	Christina
Submitter Last Name	Matulis
Submission Title	A longitudinal clinical simulation curriculum for the preclerkship student
Objective or purpose of innovation	This innovation discusses the design and implementation of a novel longitudinal simulation curriculum using high-fidelity mannequin based simulation to accompany didactic learning and allow for early exposure of clinical encounters as it relates to preclerkship topics.
Background and/or theoretical framework and importance of the field	Preclerkship education has become increasingly self-directed, with many students forgoing in-person lectures and using non-institution specific resources geared towards USMLE preparation for the bulk of their learning (1-3). Embedding simulation within core classes may enhance basic science learning and help contextualize essential core scientific principles (4-5). Simulation may therefore be an appealing, interactive tool to engage learners in basic science topics over a longitudinal period.
Innovation design	Eight simulations were designed to accompany the 18 month-long preclerkship curriculum at Yale School of Medicine. Simulation faculty collaborated with preclinical lecturers to identify key topics and design simulations. Participation was optional and students were divided into small groups to participate in scenarios virtually and in-person.
Evaluation Plan: methods and measures	During the pilot year, our evaluation plan included recording attendance metrics and eliciting written qualitative feedback from students regarding experience and suggestions for improvement.
Outcomes	Mean attendance for each session was 106 students (96% of the class, range:105-108 students). Preliminary student feedback was positive and commented on the creation of a safe learning environment, enjoyment of an experiential learning method, and increased engagement with didactic curricula.
Innovation's strengths and limitations	We demonstrated a strong interest in this optional simulation curriculum with >95% of the class participating in each session. Limitations include the single design and less interactivity for the virtual components. Future work is needed to examine retention of knowledge and differences between virtual and in-person experiences.

References	1. Wu JH, Gruppuso PA, Adashi EY. The Self-directed Medical Student Curriculum. JAMA. 2021;326(20):2005-2006. doi:10.1001/jama.2021.163122. Emanuel EJ. The Inevitable Reimagining of Medical Education. JAMA. 2020;323(12):1127-1128. doi:10.1001/jama.2020.12273. Gardner G, Feldman M, Santen SA, Mui P, Biskobing D. Determinants and Outcomes of In-person Lecture Attendance in Medical School. Med Sci Educ. 2022;32(4):883-890. Published 2022 Jul 8. doi:10.1007/s40670-022-01581-24. Gordon JA, Hayden EM, Ahmed RA, Pawlowski JB, Khoury KN, Oriol NE. Early bedside care during preclinical medical education: can technology-enhanced patient simulation advance the Flexnerian ideal?. Acad Med. 2010;85(2):370-377. doi:10.1097/ACM.0b013e3181c88d745. Ginzburg SB, Brenner J, Cassara M, Kwiatkowski T, Willey JM. Contextualizing the relevance of basic sciences: small-group simulation with debrief for first- and second-year medical students in an integrated curriculum. Adv Med Educ Pract. 2017;8:79-84. Published 2017 Jan 18. doi:10.2147/AMEP.S1248516. Cavuoto Petrizzo M, Barilla-LaBarca ML, Lim YS, et al. Utilization of high-fidelity simulation to address challenges with the basic science immunology education of preclinical medical students. BMC Med Educ. 2019;19(1):352. Published 2019 Sep 14. doi:10.1186/s12909-019-1786-57. Heitz C, Brown A, Johnson JE, Fitch MT. Large group high-fidelity simulation enhances medical student learning. Med Teach. 2009;31(5):e206-e210. doi:10.1080/014215908026379908. Meyers L, Mahoney B, Schaffernocker T, et al. The effect of supplemental high Fidelity simulation training in medical students. BMC Med Educ. 2020;20(1):421. Published 2020 Nov 10. doi:10.1186/s12909-020-02322-y9. Liaison Committee on Medical Education. Functions and Structure of a Medical School. Standards for accreditation of the medical education programs leading to the MD degree. 2020. Available at:. https://lcme.org/wp-content/uploads/filebase/standards/2021-22_Functions-and-Structure_2021-04-16.docx
Submitter First Name	Sarah
Submitter Last Name	McNeilly
Submission Title	Analysis of U.S. Allopathic Medical Schools' Official Statements Concerning Dobbs
Research Statement/Research Question	Following the U.S. Supreme Court's Dobbs v. Jackson Women's Health Organization decision on June 24, 2022, how did U.S. allopathic medical schools respond?
Background and/or theoretical framework and relevance of the study	As anchor institutions, medical schools and their parent institutions (e.g. universities, hospitals) can wield significant political and socioeconomic power within their local communities. Yet, medical schools' public-facing responses to Dobbs have not been systematically studied.
Design and methods	Public statements from medical schools and their parent institutions were identified using public and vertical search engines (i.e. Google, institutional websites) and social media (i.e. Twitter). Each channel was searched for "abortion", "Dobbs", and "Roe v. Wade" to identify statements made after the Dobbs decision leaked on May

	2, 2022. If no result was found, another individual repeated the search. Institutions' political environments were classified as restrictive, protective, or mixed based on Guttmacher Institute ratings. Each statement was analyzed to determine whether it 1) was issued on behalf of an institution or an individual; and 2) expressed a favorable, unfavorable, or neutral position on Dobbs.
Results of data collection and analysis	Most (58.9%, n=89/151) U.S. allopathic medical schools did not issue their own public response to Dobbs. A majority of the 89 silent institutions were from restrictive states, with fewer from protective or mixed states. Most of the statement-issuing institutions were from protective states— though restrictive and mixed states combined contributed more than half of all statements. Overall, only 25.0% of medical schools in restrictive states made statements (n=19/76) versus 55.8% in protective states (n=29/52).
Limitations	Publicly discoverable statements may not represent all communications around Dobbs; for example, some medical schools may opt to issue private statements to their communities and/or exert political and socioeconomic influence behind the scenes.
Conclusions	In neglecting to advocate for abortion rights and access, medical schools are surrending political and socioeconomic influence and enabling further politicization of essential reproductive healthcare.
References	N/A
Submitter First Name	Tamar
Submitter Last Name	Mosulishvili
Submission Title	An Innovative Student-led Preclinical Curricular Audit to Evaluate Time for Self-directed Learning
Objective or purpose of innovation	On the LCME independent student analysis, Geisel medical students expressed dissatisfaction with time for self-directed learning in the pre-clerkship curriculum. To better understand the student perspective, we engaged preclinical students to assess unscheduled time and evaluate compliance with school policies regarding curricular contact and pre-work hours.
Background and/or theoretical framework and importance of the field	LCME standards require that medical schools provide unscheduled time for students to participate in self-directed learning experiences and develop skills of lifelong learning1. Studies have demonstrated links between student well-being,2 curricular requirements, and student academic performance.3 Best practices related to pre-clerkship curricular requirements have not yet been uncovered.
Innovation design	Students utilized the student calendar, learning management system, published methods4 and personal experiences to determine contact hours and time required to complete pre-work assignments. This novel approach included both a student

	audit of the curriculum and an analysis of student understanding of the structure of scheduled curriculum.
Evaluation Plan: methods and measures	The student audit results were cross-checked with calculations completed by the school. The success of future interventions to address student-identified causal issues will allow us to evaluate the success of this novel student-centered audit.
Outcomes	Preclinical contact hours complied with school policy. Eight sessions were identified that assigned preparatory work that likely exceeded school policy. Required non-curricular activities reduced time for self-directed learning in some curricular weeks. The amount of unscheduled time in the preclinical curriculum established by school policy is likely not sufficient for students to engage in self-directed learning.
Innovation's strengths and limitations	Engaging students in accreditation activities enhances their understanding of regulatory requirements and increases student agency in their educational experience. Including student perspectives on the time management burden caused by preparatory work and contact hour requirements leads to a better understanding of ways to support students and address underlying causes.
References	1. Liaison Committee on Medical Education. Functions and structure of a medical school: standards for accreditation of medical education programs leading to the MD degree. Washington (DC): Association of American Medical Colleges (US); 2021 Oct.2. Slavin SJ, Schindler DL, Chibnall JT. Medical student mental health 3.0: improving student wellness through curricular changes. Acad Med. 2014;89(4):573-577. doi:10.1097/ACM.0000000000001663. Choi-Lundberg DL, Al-Aubaidy HA, Burgess JR, et al. Minimal effects of reduced teaching hours on undergraduate medical student learning outcomes and course evaluations. Med Teach. 2020;42(1):58-65. doi:10.1080/0142159X.2019.16522584. Klatt EC, Klatt CA. How much is too much reading for medical students? Assigned reading and reading rates at one medical school. Acad Med. 2011;86(9):1079-1083. doi:10.1097/ACM.0b013e31822579fc
Submitter First Name	David
Submitter Last Name	Mullins
Submission Title	The Pipette is Mightier Than the Sword: Integrating and Expanding Scientific Principles and Ethics of Research in the Medical Curriculum
Objective or purpose of innovation	Increasing exposure to basic, translational, and clinical research in a manner that is integrated into the existing curriculum, without increasing the academic burden on medical students.
Background and/or theoretical framework and importance of the field	Fluency in basic, translational, and clinical research is of utmost importance to a successful career in medicine. Educating physicians who can integrate research into practice, correlate novel information with clinical care, and deliver cutting-edge innovations to patients starts at the undergraduate medical education (UME) level.
Innovation design	The integrated Geisel curriculum was mapped with a focus on scientific and ethical principles of research. Areas of weakness and opportunities for improvement were

	identified. New curricular offerings were developed that increased exposure and understanding of the scientific and ethical principles of research. CITI training was added as a graduation requirement for current students and a pre-matriculation requirement for future students.
Evaluation Plan: methods and measures	Pre-implementation and post-implementation surveys will gather data from students followed longitudinally. Feedback and self-assessment on the robustness of their knowledge of the ethical and scientific principles of research will be collected.
Outcomes	Student confidence in their ability to relay scientific research to peers and patients, as well as their understanding of the ethics of research will be measured.
Innovation's strengths and limitations	Our innovation has many strengths; most pertinently, it applies the "see one, do one, teach one" philosophy to research: learning it, applying it in the clinic, and then teaching patients. It also aligns with LCME guidelines. Potential limitations to the plan are varying degrees of enthusiasm for research amongst the student body, as well as limited time in certain rotations to dedicate to new areas of the curriculum.
References	Feldman AM. Incorporating Clinical and Translational Science into the Undergraduate Medical Education Curriculum. Clin Transl Sci. 2015 Aug;8(4):267. doi: 10.1111/cts.12333. PMID: 26314291; PMCID: PMC5351016.
Submitter First Name	Martinique
Submitter Last Name	Ogle
Submission Title	Needs Assessment For Peer Evaluations In Small Group Case-Based Learning
Research Statement/Research Question	What are facilitators' attitudes toward student peer-to-peer assessments in Case-based Learning (CBL) at Sidney Kimmel Medical College (SKMC)?
Background and/or theoretical framework and relevance of the study	Feedback in medical education remains important for professional growth; students can be trained to provide high-quality and actionable feedback to peers in the pre-clinical setting via CBL peer feedback forms [4, 2, 1]. At SKMC, students in CBL complete standardized peer evaluation forms with mandatory Likert Scale assessment and optional written feedback, which are reviewed by the facilitator. The facilitator meets with each student individually to provide integrated peer and facilitator feedback. To study how facilitators incorporate these peer evaluations into their assessment of students, we surveyed CBL facilitators on their attitudes of SKMC's peer feedback form.
Design and methods	We constructed a 19-item survey including four demographic, six Likert scale, four free response, and five miscellaneous questions and distributed it to 51 CBL facilitators at SKMC to assess their attitudes towards peer evaluations. [3]
Results of data collection and analysis	24 of 51 facilitators completed the survey (47% response rate). Post-survey analysis in progress. 63% of faculty who wrote free responses indicated that narrative peer feedback reveals more insight into student performance than the Likert scales (10 of 16 responses). Additionally, 100% of respondents answered that narrative peer-to-peer feedback should be mandatory for students' grades in CBL (24 of 24).

Limitations	Less than 100% response rate may not accurately reflect the full faculty experience. Faculty from a single institution were surveyed.
Conclusions	Our results indicate that facilitators prefer student narrative peer-to-peer feedback to Likert scale results when evaluating their students. We hope to elucidate the relationship between peers' assessments of each other versus facilitators' assessments of students. These results can be used to adjust our current peer assessment rubric and be transferable to other institutions that use peer feedback for small-group learning.
References	1. Bird EC, Osheroff N, Pettepher CC, Cutrer WB, Carnahan RH. Using Small Case-Based Learning Groups as a Setting for Teaching Medical Students How to Provide and Receive Peer Feedback. Med Sci Educ. 2017 Dec;27(4):759-765. doi: 10.1007/s40670-017-0461-x. Epub 2017 Sep 20. PMID: 29326856; PMCID: PMC5757314.https://pubmed.ncbi.nlm.nih.gov/29326856/2. Camarata T, Slieman TA. Improving Student Feedback Quality: A Simple Model Using Peer Review and Feedback Rubrics. J Med Educ Curric Dev. 2020 Sep 25;7:2382120520936604. doi: 10.1177/2382120520936604. PMID: 33029557; PMCID: PMC7522828.https://pubmed.ncbi.nlm.nih.gov/33029557/3. Chyung SY, Roberts K, Swanson I, Hankinson A. Evidence-based survey design: The use of a midpoint on the Likert scale. Performance Improvement. 2017 Nov;56(10):15-23.4. Epstein RM. Assessment in medical education. N Engl J Med. 2007 Jan 25;356(4):387-96. doi: 10.1056/NEJMra054784. PMID: 17251535.
Submitter First Name	Shirley
Submitter Last Name	Parraga
Submission Title	Examining the effects of dermatologic health disparities
Research Statement/Research Question	To assess dermatologic health disparities affecting the outcomes of common skin conditions.
Background and/or theoretical framework and relevance of the study	Black, Hispanic, and American Indian and Alaskan Native populations experienced worse healthcare outcomes than those of other racial and ethnic groups. This effect extends to common skin conditions and may be due to inadequate clinical inclusion for minority populations and lack of provider education for disease presentation in skin of color.
Design and methods	We conducted a PubMed search for journal articles and clinical trials analyzing dermatologic health disparities and strategies for improvement. We performed a qualitative analysis of the literature and divided health disparities into two categories: quality of care and representation in educational resources, as classified by the 2021 National Healthcare Quality and Disparities Report (NHQDR). Publication dates were limited to those from 2012 through 2022.
Results of data	A total of 132 articles were discovered. Using our exclusion criteria, 25 articles were selected for full text assessment. Clinical trial representation of diverse patient

collection and analysis	populations in the field of dermatology is inadequate. Increasing representation of common skin conditions for patients of different skin color should be prioritized.
Limitations	A limitation of our analysis is the limited information available on this subject.
Conclusions	Although reporting procedures for race and ethnicity in U.S. dermatologic clinical studies have become more transparent, inclusion of representative populations has remained stagnant. Providers must adequately diagnose and manage patients with diverse skin of color who may have different clinical presentation or morphological variants. Increasing provider awareness of differences in presentation of common skin conditions can lead to timely management and improve patient outcomes for individuals of diverse races and ethnicities. Additional efforts are warranted in support of increasing dermatologic diversity and inclusion. We provide suggestions to enhance clinical trial inclusion and provider awareness for diverse patient populations.
References	1) 2021 National Healthcare Quality and Disparities Report. Agency for Healthcare Research and Quality. https://www.ahrq.gov/research/findings/nhqrdr/nhqdr21/index.html. 2) Buster KJ, Stevens EI, Elmets CA. Dermatologic Health Disparities. Dermatologic Clinics. 2012;30(1):53-viii. doi:10.1016/j.det.2011.08.002. 3) Kamal K, Imadojemu S, Charrow A. Why Diversity in Dermatology Clinical Trials Should No Longer Be Optional: Dismantling Structural Racism in Dermatology. JAMA Dermatology. 2022;158(4):353–354. doi:10.1001/jamadermatol.2021.5190.4) Poladian K, De Souza B, McMichael AJ. Atopic Dermatitis in Adolescents With Skin of Color. Cutis. 2019 Sep;104(3):164-168. PMID: 31675392.5) Chen V, Akhtar S, Zheng C, Kumaresan V, Nouri K. Assessment of Changes in Diversity in Dermatology Clinical Trials Between 2010-2015 and 2015-2020: A Systematic Review. JAMA Dermatology. 2022;158(3):288–292. doi:10.1001/jamadermatol.2021.5596
Submitter First Name	Jamie
Submitter Last Name	Rowell
Submission Title	Fostering the Qualities of Excellent Clinical Teachers in Medicine: A Pilot Observed Structured Teaching Encounter
Objective or purpose of innovation	To implement an innovative curriculum assessment tool to ensure the Resident, Student, and Fellow as Teacher (RAST) course is meeting its learners' needs.
Background and/or theoretical framework and importance of the field	The ACGME recognizes resident teaching skills in its Core Competencies and Milestones. The Larner College of Medicine (LCOM) at the University of Vermont (UVM) offers a RAST course to all fourth-year medical students, residents, and fellows to help achieve this competency.
Innovation design	Using the Kirkpatrick model, the RAST curriculum was evaluated to ensure it is meeting its learners' needs. We utilized the clinical teaching strategy of the Objective Structured Teaching Exercise (OSTE)[1-3] to assess if our learners could demonstrate effective teaching strategies after participation in the RAST elective.

	Learners chose from a variety of clinical scenarios and prepared teaching in a simulated encounter.
Evaluation Plan: methods and measures	The pilot OSTE session took place at the end of the elective week with learner attitudes and perceptions of learning assessed via a qualitative survey using the Likert scale 1-5 (1=strongly disagree, 5=strongly agree). Learner performance was assessed using a published OSTE assessment form[3].
Outcomes	Pilot survey data show that all participants (n=8) strongly agreed that this was a valuable experience and that the feedback was useful for their teaching, both with a mean(±SD) agreement of 5(±0). The teaching cases were felt to be an accurate representation of real-life teaching scenarios with a mean(±SD) agreement of 4.88 (±0.35), and learners agreed that the environment was very conducive to practicing teaching skills mean(±SD) rating of 4.88 (±0.35).
Innovation's strengths and limitations	Data show that learners felt comfortable with the experience and received informative feedback about their teaching skills. In order to asses for interval change, a pre- and post-elective OSTE will be introduced.
References	1. Zackoff, M., et al., An Observed Structured Teaching Evaluation Demonstrates the Impact of a Resident-as-Teacher Curriculum on Teaching Competency. Hosp Pediatr, 2015. 5(6): p. 342-7.2. Zackoff, M.W., et al., Objective Assessment of Resident Teaching Competency Through a Longitudinal, Clinically Integrated, Resident-as-Teacher Curriculum. Acad Pediatr, 2019. 19(6): p. 698-702.3. Oh, S., T. Servoss, and D. Wilkins, Using the Objective Structured Teaching Ecounter to Assess Resident Teaching Skills. Fam Med, 2021. 53(6): p. 453-456.
Submitter First Name	Shafkat
Submitter Last Name	Salam
Submission Title	Measuring the Effects of a Streamlined Training Curriculum on Empathy in First-Year Medical Students
Research Statement/Research Question	The goal of this study is to assess the empathy levels of first-year medical students (MS1s) using the Consultation and Relational Empathy (CARE) Measure.
Background and/or theoretical framework and relevance of the study	Empathy is an essential attribute physicians must demonstrate when caring for patients. This importance lies in its association with improved patient health outcomes.
Design and methods	In this pre/post-test quasi-experimental study, 135 MS1s participated in two Objective Structured Clinical Examinations (pre-and-post OSCE) requiring engaging in difficult conversations (Alcohol Misuse-Alcohol; Intimate Partner Violence-IPV). Standardized patients used the CARE measure to score students on their empathy levels at baseline (half completed the Alcohol case and the other half completed the IPV case). Subsequently, 50 students (intervention) participated in a two-hour training that included a didactic session about topics in empathy and compassion, how to be more empathic towards patients, and nonverbal skills that demonstrate

	empathy. Additionally, students role-played through multiple cases in a large group setting to practice the skills taught during the didactic. The remaining 84 students (control) did not receive training. After three weeks, all students completed the OSCE case they did not do previously. Delta empathy scores were calculated by subtracting post-OSCE scores from pre-OSCE scores. Two-way ANOVA was used to assess differences in empathy scores related to the group (intervention, control) and order in which the OSCE cases were completed (Alcohol-IPV, IPV-Alcohol).
Results of data collection and analysis	There was no statistical difference in empathy scores at baseline between students in the control and intervention groups (p=.69). Two-way ANOVA showed a significant main effect for case order (p< 0.01) but not for group (p=.85) and not for the interaction between group and case order (p=.09).
Limitations	The greatest limitation of this study is that it was conducted at a single institution with a single cohort.
Conclusions	Regardless of group, students demonstrated improved empathy when they did the Alcohol case first, followed by the IPV case.
References	1. Mercer SW, Maxwell M, Heaney D, Watt GC. The consultation and relational empathy (CARE) measure: development and preliminary validation and reliability of an empathy-based consultation process measure. Fam Pract. 2004 Dec;21(6):699-705. doi: 10.1093/fampra/cmh621. Epub 2004 Nov 4. PMID: 15528286.2. Rakel DP, Hoeft TJ, Barrett BP, et al. Practitioner empathy and the duration of the common cold. Fam Med. 2009;41:494–501.3. Lown, B. A., Rosen, J., & Marttila, J. (2011). An Agenda For Improving Compassionate Care: A Survey Shows About Half Of Patients Say Such Care Is Missing. Health Affairs, 30(9), 1772–1778.4. Morris, Kostantinos E. BS, Pappas, Theodore N. MD. Creating a Medical School Curriculum to Teach Empathy. Ann Surg. 2021;2:3:85.5. Newton BW, Barber L, Clardy J, et al. Is there hardening of the heart during medical school? Acad Med. 2008;83:244–249.6. Patel, S., Pelletier-Bui, A., Smith, S., Roberts, M. B., Kilgannon, H., Trzeciak, S., & Roberts, B. W. (2019). Curricula for empathy and compassion training in medical education: A systematic review. Plos One, 14(8).
Submitter First Name	Chris
Submitter Last Name	Sankey
Submission Title	Needs Assessment of internal medicine learner confidence and desire for more teaching in hospital medicine competencies
Research Statement/Research Question	Assess educational gaps in hospital medicine (HM) competencies among internal medicine (IM) learners.
Background and/or theoretical framework and relevance of the study	HM is a frequently chosen career option for graduate medical trainees. Published data suggest residency graduates have knowledge and skill deficiencies upon arrival to HM positions. Specific training in HM competencies during residency is heterogeneous and often absent, little data exist regarding IM learner confidence and desire for additional instruction in HM competencies.

Design and methods	Survey study of Yale IM residents from December 2021-June 2022 evaluating confidence in 44 HM competencies (scale of 1-4), and desire for additional training (yes/no). Competency domains: procedures, POCUS, clinical skills, palliative care, transitions of care, patient-level and system-level competencies. Confidence data were aggregated and dichotomized. Responses 1-2 represented 'not confident' and 3-4 'confident'. PGY-1/2 were 'junior' and PGY-3/4 'senior'. Chi-squared analysis was used to determine differences between groups.
Results of data collection and analysis	The study had a 30% response rate. Confidence was lowest across all learners for procedures, POCUS, and system-level competencies, and highest in care transitions, palliative care, and patient-level competencies. Junior learners reported significantly lower confidence than senior learners across all domains. A desire for more teaching was highest in POCUS, system-level competencies, and procedures, without significant differences between juniors and seniors. Desire for more teaching was lowest in care transitions, patient-level competencies, and palliative care. Junior learners expressed a significant difference in desire for more teaching in care transitions and clinical skills compared to seniors.
Limitations	Single-center design
Conclusions	IM learners' desire for more teaching was highest in the same HM competency domains in which they have the lowest confidence. Junior learners have significantly lower confidence levels across all competency domains as compared to seniors, but desire more teaching in only clinical skills and care transitions. These data can be used to inform local and national educational curricula.
References	1. Wachter RM, Goldman L. Zero to 50,000 - The 20th Anniversary of the Hospitalist. N Engl J Med. 2016 Sep 15;375(11):1009-11.2. Glasheen JJ, Siegal EM, Epstein K, Kutner J, Prochazka AV. Fulfilling the promise of hospital medicine: tailoring internal medicine training to address hospitalists' needs. J Gen Intern Med. 2008 Jul;23(7):1110-5.3. Nichani S, Fitterman N, Lukela M, Crocker J; Society of Hospital Medicine. The Core Competencies in Hospital Medicine 2017 Revision. Section 1: Clinical conditions. J Hosp Med. 2017 Apr;12(4 Suppl 1):S1-S43.4. Nichani S, Fitterman N, Lukela M, Crocker J; Society of Hospital Medicine. The Core Competencies in Hospital Medicine 2017 Revision. Section 2: Procedures. J Hosp Med. 2017 Apr;12(4 Suppl 1):S44-S54.5. Nichani S, Fitterman N, Lukela M, Crocker J; Society of Hospital Medicine. The Core Competencies in Hospital Medicine 2017 Revision. Section 3: Healthcare Systems. J Hosp Med. 2017 Apr;12(4 Suppl 1):S55-S82.6. Kumar A, Smeraglio A, Witteles R, Harman S, Nallamshetty S, Rogers A, Harrington R, Ahuja N. A resident-created hospitalist curriculum for internal medicine housestaff. J Hosp Med. 2016 Sep;11(9):646-9.7. Lin D, Shah C, Campbell S, Bates JT, Lescinskas E. Getting it RITE: Impact of a Dedicated Hospital Medicine Curriculum for Residents. South Med J. 2018 Jan;111(1):30-34.8. Lin D, Shah C, Lescinskas E, Ritter C, Gay L. Implementation of a Hospital Medicine Rotation and Curriculum for Internal Medicine Residents. MedEdPORTAL. 2020 Sep 29;16:10977.
Submitter First Name	Sarah
Submitter Last Name	Safran

Submission Title	Interactive Online Modules to Foster Medical Reasoning Skills in Preclinical Students
Objective or purpose of innovation	Creation of engaging online modules to help preclinical students develop diagnostic reasoning skills.
Background and/or theoretical framework and importance of the field	Diagnostic reasoning is the backbone of clinical medicine. OSCEs are widely used as opportunities for students to employ clinical reasoning skills in a controlled setting. Anecdotally, however, many preclinical students feel unprepared when entering standardized encounters. If prefaced by sufficient preparation, pre-clinical OSCEs could be an excellent way to begin teaching these skills.
Innovation design	We have designed a set of interactive learning modules to allow pre-clinical students to practice generation of a broad differential diagnosis based on a chief complaint and identification of discriminating features between diagnoses in a formative setting. Here are two examples: - https://www1.columbia.edu/sec/ccnmtl/remote/static/learningobjects/stream/Barron/Syncope/story.html - https://www1.columbia.edu/sec/ccnmtl/remote/static/learningobjects/stream/Barron/ChestPain_Differential/story.html
Evaluation Plan: methods and measures	After completing each module, students participate in an anonymous survey assessing layout, difficulty, time intensiveness and effectiveness of the module, as well as preparedness for encountering a patient with that chief complaint before and after completion of the module.
Outcomes	Preliminary data from 40 students who completed the first module indicates that it is effective (93% of respondents) and increases preparedness (the proportion of students who were “moderately” to “very” prepared increased from 15% prior to the module to 88% after). Additional data is being collected.
Innovation’s strengths and limitations	These modules teach clinical reasoning skills in an accessible way, allowing students to move at their own pace and to repeat lessons as needed. Since they focus on teaching medical reasoning skills, they do not provide a comprehensive review of content relevant to each chief complaint and therefore rely on this material being taught in other courses.
References	1. Bowen JL. Educational strategies to promote clinical diagnostic reasoning. N Engl J Med. 2006;355(21):2217-2225.2. Gruppen LD. Clinical Reasoning: Defining It, Teaching It, Assessing It, Studying It. West J Emerg Med. 2017 Jan; 18(1): 4-7.3. Weinstein A, Pinto-Powell R. Introductory Clinical Reasoning Curriculum. MedEdPORTAL. 2016;12:10370.
Submitter First Name	Chris
Submitter Last Name	Sankey
Submission Title	A novel inpatient rotation in hospital medicine

Objective or purpose of innovation	Provide graduate medical education (GME) learners: 1) access to curated curriculum in hospital medicine (HM), informed by published competencies and local needs assessment; 2) inpatient rotation predicated on transition to attending practice; 3) exposure to a unique workflow consistent with traditional "non-academic" models.
Background and/or theoretical framework and importance of the field	HM is a frequently chosen career option for graduate medical trainees. Published data suggest residency graduates have knowledge and skill deficiencies upon arrival to HM positions. Additional data demonstrate learners identify many challenges in transition from resident to attending roles. Apprenticeship models, in which upper-level GME learners assume near-attending roles, have been successful but are infrequently implemented.
Innovation design	Day shift: 2 HM attendings paired with 2 PGY-3 learners without interns. Night shift: 1 PGY-3 and 1 PGY-1. All senior residents rotate through day and/or night rotation. Patient handoffs between day and night teams via EMR, and there are no formal walk rounds. Curriculum is housed via centralized electronic platform (Microsoft Teams) and there are weekly 60-90 minute interactive "skills labs" on POCUS, procedures, clinical deterioration simulation, and diagnostic reasoning. Education and support for use of EMR-based clinical pathways (CPs) are provided. Low-stakes feedback is obtained from unit nurses for both residents and attendings via standardized tool.
Evaluation Plan: methods and measures	Subjective: resident experience, nursing experience, resident self-assessment. Objective: patient-and learner-level metrics. Rapid PDSA cycles during first year of implementation.
Outcomes	Patient-level metrics: 11am discharge rate, length of stay, readmissions. Learner-level metrics: CP use, pre-/post-rotation self-assessment regarding confidence in HM competencies, written nursing feedback.
Innovation's strengths and limitations	Strengths: Robust needs assessment data, real-time access to patient- and learner-level metrics, well-defined group of learners, well-defined group of HM faculty supervisors. Limitations: Limited to single unit, with impaired patient flow due to hospital volume and long-stay patients.
References	1. Roten C, Baumgartner C, Mosimann S, Martin Y, Donzé J, Nohl F, Kraehenmann S, Monti M, Perrig M, Berendonk C. Challenges in the transition from resident to attending physician in general internal medicine: a multicenter qualitative study. BMC Med Educ. 2022 May 2;22(1):336.2. Glasheen JJ, Siegal EM, Epstein K, Kutner J, Prochazka AV. Fulfilling the promise of hospital medicine: tailoring internal medicine training to address hospitalists' needs. J Gen Intern Med. 2008 Jul;23(7):1110-5. doi: 10.1007/s11606-008-0646-5. Erratum in: J Gen Intern Med. 2008 Nov;23(11):1931.3. Moriarty JA, Vellanki S, Trope LA, Hilgenberg SL, Blankenburg RL. Righting the Autonomy-Supervision Pendulum: Understanding the Impact of Independent Rounds on Medical Students, Residents, and Faculty. Acad Med. 2020 Nov;95(11S Association of American Medical Colleges Learn Serve Lead: Proceedings of the 59th Annual Research in Medical Education Presentations):S28-S36.4. Dunbar-Yaffe R, Wu PE, Kay T, Mylopoulos M, McDonald-Blumer H, Gold WL, Stroud L. Understanding the Influence of the Junior Attending Role on Transition to Practice: A Qualitative Study. J Grad Med Educ. 2022 Feb;14(1):89-98.5. Nichani S, Fitterman N, Lukela M, Crocker J; Society of Hospital Medicine. The Core Competencies in Hospital Medicine

	2017 Revision. Section 1: Clinical conditions. J Hosp Med. 2017 Apr;12(4 Suppl 1):S1-S43.6. Nichani S, Fitterman N, Lukela M, Crocker J; Society of Hospital Medicine. The Core Competencies in Hospital Medicine 2017 Revision. Section 2: Procedures. J Hosp Med. 2017 Apr;12(4 Suppl 1):S44-S54.7. Nichani S, Fitterman N, Lukela M, Crocker J; Society of Hospital Medicine. The Core Competencies in Hospital Medicine 2017 Revision. Section 3: Healthcare Systems. J Hosp Med. 2017 Apr;12(4 Suppl 1):S55-S82.8. Jabbour M, Newton AS, Johnson D, Curran JA. Defining barriers and enablers for clinical pathway implementation in complex clinical settings. Implement Sci. 2018 Nov 12;13(1):139.
Submitter First Name	Alexandra
Submitter Last Name	Santana Almansa
Submission Title	Design and implementation of an introductory curriculum for new Child Neurology and Neurodevelopmental Disabilities trainees
Objective or purpose of innovation	To design an introductory curriculum to equip child neurology and neurodevelopmental disabilities trainees with foundational knowledge to increase their capacity to care for patients with neurological needs.
Background and/or theoretical framework and importance of the field	Incoming post-graduate year 3 (PGY-3) Child Neurology and Neurodevelopmental Disabilities residents at Boston Children's Hospital have disparate exposure to neurology. In this quaternary center's neurology service, trainees are expected to respond to neurologic emergencies and provide diagnostic formulations early in training.
Innovation design	The curriculum was developed using Kern's 6-steps of curricular design and the American Board of Psychiatry and Neurology content outline. Near-peer teaching and inclusion of only incoming trainees promoted community-building and psychological safety around unfamiliar topics. Content included basic principles of localization, common examination findings and approach to common neurologic complaints and emergencies. Format was a "bootcamp" consisting of nine 90-minute interactive sessions.
Evaluation Plan: methods and measures	Measures included pre- and post-intervention tests with knowledge-based questions and anonymous qualitative and quantitative feedback surveys.
Outcomes	All (8) PGY-3 residents agreed to participate in the study. Residents reported low baseline self-efficacy on core topics such as how to respond to neurologic emergencies and knowledge of differential diagnosis for common neurologic complaints. Residents reported that content prepared was appropriate for learner level, taught clearly, and that teachers appropriately modeled vulnerability. Pre- and post-session tests showed an average improvement of 16% in knowledge-based questions. Residents reported intention to change practice and enacted behavioral changes due to bootcamp, particularly related to neurologic exam, localization, and interpretation of diagnostic studies.

Innovation's strengths and limitations	Our preliminary data suggest that bootcamps may be helpful in enhancing resident comfort, self-efficacy and knowledge, while creating a safe environment for learning foundational neurology topics.
References	Blackmore C, Austin J, Lopushinsky SR, Donnon T. Effects of Postgraduate Medical Education "Boot Camps" on Clinical Skills, Knowledge, and Confidence: A Meta-Analysis. J Grad Med Educ. Dec 2014;6(4):643-52. doi:10.4300/JGME-D-13-00373.1Chen CA, Kotliar D, Drolet BC. Medical education in the United States: do residents feel prepared? Perspect Med Educ. Aug 2015;4(4):181-5. doi:10.1007/s40037-015-0194-8Lockspeiser TM, O'Sullivan P, Teherani A, Muller J. Understanding the experience of being taught by peers: the value of social and cognitive congruence. Adv Health Sci Educ Theory Pract. Aug 2008;13(3):361-72. doi:10.1007/s10459-006-9049-8Kern DE. Curriculum Development for Medical Education : A Six Step Approach. Baltimore: Johns Hopkins University Press; 1998.Young JQ, Ranji SR, Wachter RM, Lee CM, Niehaus B, Auerbach AD. "July effect": impact of the academic year-end changeover on patient outcomes: a systematic review. Ann Intern Med. Sep 2011;155(5):309-15. doi:10.7326/0003-4819-155-5-201109060-003542022 ABPN Content Specifications, November 2021. American Board of Psychiatry and Neurology.
Submitter First Name	Catherine
Submitter Last Name	Stratis
Submission Title	Future Docs for Abortion Access: Coalition-Building Lessons from NYC Medical Students
Objective or purpose of innovation	To develop a novel educational resource that addresses longstanding inadequacies in abortion education at U.S. medical schools locally and nationally.
Background and/or theoretical framework and importance of the field	Abortion education is a crucial but neglected component of the U.S. medical school curriculum facing an existential threat post-Roe v. Wade. Medical students have historically addressed curricular gaps with abortion training and advocacy through organizations like Medical Students for Choice (MSFC). By mobilizing established national networks, medical students can safeguard and expand abortion education and access.
Innovation design	In June 2022, seven NYC-area MSFC chapters formed the "MSFC NYC" coalition. With physician oversight, student-leaders wrote and edited a 35-page resource guide entitled "Accessing Abortion in NYC: A Guide for Medical Students, by Medical Students," providing comprehensive clinical, legal, and social information on abortion care and access.
Evaluation Plan: methods and measures	MSFC NYC promoted the guide alongside its "Future Docs for Abortion Access" fundraising campaign from August 1 to September 15, 2022. On November 1, 2022, the guide will be published online through Columbia University's open-access Zine Library. It will be disseminated among NYC medical students and professionals through healthcare delivery and advocacy partnerships, and shared with 10,000 MSFC members across 28 countries with guidance on

	adapting its contents to reflect conditions in other locations. Impact will be assessed by analyzing survey feedback and download/share data.
Outcomes	Future Docs for Abortion Access raised $20,105 for local and national abortion access funds. Impact data will be collected for one month after its launch.
Innovation's strengths and limitations	The multi-institutional partnership formed a diverse team whose perspectives strengthen the booklet's contents, distribution, and local relevance. Our NYC-area medical student standpoint limits the booklet's immediate 1) accessibility by non-healthcare professionals and 2) generalizability in abortion-hostile states.
References	N/A
Submitter First Name	John
Submitter Last Name	Szarek
Submission Title	Student Medical Education Research Team – Facilitating Development of Scholarship and Promoting Interinstitutional Education Research
Objective or purpose of innovation	The purpose of this innovation is to develop student scholarship, and to establish interinstitutional collaborations, in medical education research.
Background and/or theoretical framework and importance of the field	Increasingly students have participated with faculty mentors in education research but the research usually is focused within the host institution. We observed the lack of interinstitutional work as an opportunity to leverage existing multi-institutional collaborations among faculty who mentor medical students interested in medical education scholarship and bring them and their students together forming the Student Medical Education Research Team (SMERT).
Innovation design	Faculty colleagues from 3 medical schools together with students they mentor in medical education research began meeting to share research ideas and offer constructive feedback. This forum provides an opportunity for students to come together to collaborate on research projects across institutions.
Evaluation Plan: methods and measures	Apart from the quantitative measures (number of abstracts presented, etc.), elements of situativity theory help drive methods to assess students in SMERT including rubrics for assessing abstracts and posters and self-assessment and peer rating questionnaires addressing dimensions such as communication, leadership, and self-management. Programmatic evaluation will be addressed using the CIPP (context/input/process/product) model.
Outcomes	Not only will students hone their skills in education research, SMERT will promote relationships among medical students and begin establishing a network which will be invaluable to their careers after graduation.
Innovation's strengths and limitations	Strengths of SMERT include enrichment of research projects with the addition of the students' perspective, entrée of students into the medical education community, and enhancement of projects through interinstitutional collaboration. With more than one institution involved, however, projects could last beyond the time medical students have to see them to completion.

References	1. Durning SJ, Artino AR. Situativity theory: A perspective on how participants and the environment can interact. AMEE Guide no. 52. Medical Teacher. 2011;33(3):188-199.2. Frye AW, Hemmer PA. Program evaluation models and related theories: AMEE Guide No. 67. Medical Teacher. 2012;34:e288–e299.3. Huggett KN, Gusic ME, Greenberg R, Ketterer JM. Twelve tips for conducting collaborative research in medical education. Medical Teacher. 2011;33(9):713-718.4. Vasilica A-M, Kumar NS. Twelve tips for successfully getting involved in research as a medical student. Medical Teacher. 2022;44(9):962-966.
Submitter First Name	Urvashi
Submitter Last Name	Vaid
Submission Title	An Innovative Module-based Approach to Linking Bloom's Taxonomy and Learning Objectives in Medical Education
Objective or purpose of innovation	Competency-based education in the preclinical-years of medical school frequently relies on Learning Objectives (LO). This LO-based curricular framework allows for assessment of specific LOs and competencies. There is a paucity of literature surrounding the ability of medical students to comprehend LOs and demonstrate the application of Bloom's taxonomy. We created a module introducing Bloom's taxonomy and its application to LOs and demonstrated its efficacy with a pre- and post-module survey.
Background and/or theoretical framework and importance of the field	The AAMC's Medical Schools Objectives Project standardized the competencies students should have upon joining the medical field. The LO-based curricular framework utilizes Bloom's Taxonomy to construct LOs with a cognitive domain and a knowledge domain that reflects these competencies. Thus, it becomes imperative that students are able to deconstruct an LO in the accurate domain and use it to further their learning.
Innovation design	The study design consisted of a pre- and post-survey delivered around an educational module, developed by the research team, detailing Bloom's Taxonomy and its application to LOs.
Evaluation Plan: methods and measures	275 students were invited to participate. Data were collected over four weeks.
Outcomes	Response rates for the pre-survey were 26.2% (n=72) and 75.0% (n=54) for the post-survey. 61% (n=44) of respondents reported LOs were not used in previous educational institutions. A comparison of pre- and post-module survey responses showed a 20% and 23% increase in the percentage of respondents agreeing with the following statements: "I understand the individual components of LOs," and "I have appropriate strategies for addressing learning objectives," respectively.

Innovation's strengths and limitations	Outcomes supported the need for an educational intervention and the efficacy of our module. Study limitations include a small sample size.
References	Learning objectives for medical student education--guidelines for medical schools: report I of the Medical School Objectives Project. Acad Med. 1999;74(1):13-18. doi:10.1097/00001888-199901000-00010Anderson L. A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. New York: Longman, 2001
Submitter First Name	Ana
Submitter Last Name	Valle
Submission Title	Comparison of the current state of ultrasound training in United States fellowships and European rheumatology training
Research Statement/Research Question	Our aim was to review current published rheumatology ultrasound (RhUS) curricula across United States rheumatology fellowship programs and compare it to European RhUS training.
Background and/or theoretical framework and relevance of the study	After decades of advocacy within rheumatology, the use of ultrasound has become more common. Most United States fellowship programs offer ultrasound training; however, rheumatology ultrasound curricula have not yet been compared among United States fellowships or their European counterparts.
Design and methods	PubMed was searched for peer-reviewed literature regarding rheumatology fellowship training in the United States and Europe. All American rheumatology fellowship training websites and EULAR nations with active rheumatology society links were reviewed for description of ultrasound training and certification.
Results of data collection and analysis	While there have been numerous proposed rheumatology curricula for fellowship programs within the United States, there is limited curricula evaluation and standardization across programs. 113/141 (80%) of fellowship programs advertised a curricular ultrasound component yet only 14% (20/141) offered ultrasound certification and specifically mentioned the Ultrasound School of North American Rheumatologists. Although RhUS training can occur in different years of medical education and in multiple languages across Europe, there is a plethora of literature describing ultrasound training implementation and evaluation. Most EULAR countries have national ultrasound curricula. Of the 42 EULAR member societies listed, only 26 links were active. Of these, 9/26 (34%) mentioned ultrasound training, six were through EULAR and three were regional seminars.
Limitations	Literature review was not conducted in a systemic method and only English articles were evaluated. Websites in different languages may have led to underreporting of ultrasound training.
Conclusions	While the prevalence of ultrasound training in the United States appears to be comparable to European counterparts, there is a paucity of curriculum evaluation and standardization in the United States. Evaluation of current rheumatology

	fellowship ultrasound curricula is crucial to adopt a national curriculum standard so that ultrasound can become an integral part of rheumatology practice.
References	American College of Rheumatology Musculoskeletal Ultrasound Task Force. Ultrasound in American rheumatology practice: report of the American College of Rheumatology musculoskeletal ultrasound task force. Arthritis Care Res (Hoboken). 2010 Sep;62(9):1206-19. doi: 10.1002/acr.20241. PMID: 20506272. Torralba KD, Cannella AC, Kissin EY, Bolster MB, Salto LM, Higgs J, Samuels J, Nishio MJ, Kaeley GS, Evangelisto A, De Marco P, Kohler MJ. Musculoskeletal Ultrasound Instruction in Adult Rheumatology Fellowship Programs. Arthritis Care Res (Hoboken). 2020 Jun;72(6):859-870. doi: 10.1002/acr.23336. Epub 2020 May 25. PMID: 28777891.
Submitter First Name	Richard
Submitter Last Name	Vuong
Submission Title	Determinants of Medical Student Loan Default Rates
Research Statement/Research Question	What factors influence the default rates of medical student loans?
Background and/or theoretical framework and relevance of the study	In 2018, the average medical student graduated with $215,900 of debt and ultimately pays $365,000-$440,000 for an educational loan including interest. These large interest payments are a direct result of higher interest rates for federal loans allotted for graduate and medical school education. Graduate and medical students pay a fixed interest rate of 5.28% or 6.28% while undergraduate students pay 3.74%. To better understand how higher interest rates impact medical student debt, this project calculated the federal loan default rates of 25 medical schools across a 10-year period.
Design and methods	Institution-specific default rates published by the Department of Education (DOE) were cross referenced with American Association of Medical Colleges member database to estimate the default rates of medical student loans.
Results of data collection and analysis	Four of the 25 medical schools with default data differed from the others by having a student body that consists mainly of underrepresented minorities (URMs). Two of those four medical schools were located in Puerto Rico and showed statistically higher cohort average default rates for FY 2009-18 ($p < 0.0004$) compared to all other schools. The other two schools represented historically black college and universities and had shown significant disparities in default rates compared to some medical schools ($p = 0.0001$).
Limitations	Default cohort data from the DOE represents whole institutions rather than individual payees. Thus, comparison of URM medical school default rates only compared between institutions rather than between individual students at the same institute.
Conclusions	These findings suggest that URMs who enter medical school are less able to pay back their medical student loans due to higher costs. Higher student loan interest rates increase cost of attendance and is a possible barrier for minorities to afford and attend medical and graduate school.

References	Hanson, M. 2021. Average Medical School Debt. Retrieved from https://educationdata.org/average-medical-school-debt on April 8, 2022Federal Student Aid. Understand how interest is calculated and what fees are associated with your federal student loans. Retrieved from studentaid.gov/understand-aid/types/loans/interest-rates September 14, 2022.
Submitter First Name	Fatima
Submitter Last Name	Warraich
Submission Title	A Survey of Internal Medicine Residents Regarding their Satisfaction with the Transition to A Virtual Academic Half Day
Research Statement/Research Question	Our study aimed to gain residents' perspective on the transition of an in-person Academic Half Day to a virtual half-day.
Background and/or theoretical framework and relevance of the study	In the time of COVID-19, GME had to adapt to social distancing by adopting virtual learning. In GME, as residents are the main stakeholders, their perspective is a vital one, which has been underrepresented in current literature.
Design and methods	All medicine and graduating residents at UMMS-Baystate (n=54) received an online survey that queried respondents on their perceptions of an in-person and virtual AHD. The primary outcomes were impressions on educational experience, impact on knowledge acquisition, wellness and camaraderie for both in-person and virtual AHD. Results were analyzed descriptively and with Fisher's exact test.
Results of data collection and analysis	A total of 30 residents completed the survey. Seventy-three percent of residents were satisfied with in-person AHD as compared to 41% for virtual (p=0.1) and 73% agreed in-person AHD is enjoyable compared to only 30% for the virtual AHD (p=0.005). In regard to knowledge acquisition, 83% of participants agreed that the content taught during the in-person AHD was clinically relevant compared to 70% of participants for virtual sessions (p=0.51). When asked if residents felt comfortable participating in the in-person AHD, eighty-six percent of residents agreed as compared to 56% for virtual AHD (p=0.04). Eighty-three percent of residents felt that in-person AHD contributes to camaraderie amongst residents as compared to 43% for virtual AHD (p=0.01). Sixty-nine percent of participants agreed that AHD contributed to resident wellness while only 43% agreed for virtual academic half-day (p=0.16).
Limitations	The limitations include sample size and that sample included only 1 internal medicine residency program.
Conclusions	This study suggests that medicine residents prefer an in-person AHD. The results also suggest that residents feel their acquisition of medical knowledge is better with in person learning and the opportunities to congregate regularly with peers impacts wellness and camaraderie.

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Submission Title	Effective Patient Handover Implementation and Assessment for Fourth-Year Medical Students
Research Statement/Research Question	To develop effective formalized instruction on patient handovers for fourth-year medical students (MS4s).
Background and/or theoretical framework and relevance of the study	Transition of care involves the transfer of a patient between medical practitioners and/or settings. A major aspect of transition of care is the patient handover during which miscommunication is a significant cause of medical error and harm in patient care (1-3). Unfortunately, few medical schools offer formalized instruction on patient handovers with most medical students learning from interns and residents through unstructured teaching (4,5).
Design and methods	MS4s in the two-week EM and IM Transition to Residency (TTR) courses participated in a case-based didactic lecture on handover and a follow-up simulation exercise. Students completed a pre- and post-survey with questions related to prior

	experience, confidence level and perceptions of giving/receiving patient handovers. Students were also presented with 3 case vignettes and asked to write handovers using the IPASS template. Paired-samples t-tests were calculated to identify significant differences between pre- and post-survey responses.
Results of data collection and analysis	Twenty-five students participated; of which 12 indicated not having prior experience with both giving and receiving patient handovers (NO_EXP) and 13 students stated they have experience (EXP). Unlike the EXP group, the NO_EXP group showed significant improvements from pre- to post- for all the survey responses. Although students in the EXP group received higher scores on the pre-survey's written handovers, they were not statistically different from the NO_EXP group. Comparing pre-and post-survey scores, the NO_EXP group significantly improved on the Illness Severity component of IPASS (p=.005).
Limitations	This study was only conducted at a single institution with a small sample size.
Conclusions	Although a small sample size, data analysis demonstrated statistical significance in the NO_EXP group. By exposing fourth-year medical students to a standardized method of giving patient handovers and simulated practice, students can increase their proficiency in transitioning care and reduce the incidence of medical errors in the future.
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