curricular items. Open responses were analyzed by authors to generate themes using Braun and Clarke's 6-Step Framework.

Results: Table 1 highlights curricular elements that had a statistically-significant relationship with students' perception of their preparation, communication, relationships, and well-being related to clinical uncertainty. Qualitatively, students appreciated emotional vulnerability from teachers, storytelling, communication strategies, role-modeling, debriefing, and simulations (Table 2). SE positively and IUS inversely correlated with adaptive trait items ($p<0.05$).

Table 1. Correlations between uncertainty elements and educational programs.

Clerkship Uncertainty Element	Educational Programs with Correlations to Uncertainty Element Ratings
Preparation	• Clinical Team Debriefs (p=0.04) • Interprofessional Clinical Role Playing (p=0.02) • Case-Based Learning (p=0.03)
Patient Communication	• Talking about my experiences with others (p=0.03) • Clinical Story Slams (p=0.03) • Required Scholarly Activity (p=0.03)
Patient Relationship Building	• Clinical Team Debriefs (p=0.01) • Small-Group Communication Skills Practice (p=0.02)
Well-Being	• Small-Group Communication Skills Practice (p=0.02) • Team-Based Problem-Solving Lectures (p=0.02) • Writing Reflections and Narratives (p=0.04)

Table 2. Themes and examples for improving clinical uncertainty education (open responses)

Theme	Example Comments	# of Comments
Experience	• Being in the clinic and facing problems directly is the only way.	43
Reflections	• It's okay [for attendings] to have emotions and talk about those emotions, it's okay to have a bad day, it's okay to acknowledge when you are stressed. • I think it is super helpful to work in a team where people say out loud that there are uncertainties and address how that makes them feel.	34
Simulations	• Simulations! Loved having throughout my education. • Standardized patient encounters, choose your own adventure style modules.	17
Small-Group Learning	• More clinical skills small group sessions about uncertain scenarios.	17
Debriefing	• My greatest benefit came with debriefing an actual event with the resident who stood alongside me.	16
Demonstrating Communication	• Seeing good examples of physicians explaining things to patients when they don't know exactly in a concrete way. • Seeing good examples of physicians explaining things to patients when they don't know exactly in a concrete way and what they DO know and what they are going to do to work to figure it out.	11
Role Modeling	• Seniors who demonstrate how you can tolerate it successfully, show it is not a failure, reveal how to create relationships with patients while being uncertain.	14
Storytelling	• More stories from more professionals. • I'm a big fan of the faculty sharing their stories with us.	10
Wellness Activities	• Students experience incredible distress when there is not a clear-cut-and-dry answer and they likewise approach medicine from a strictly resume-padding approach (whatever gets them to honor and match into some surgical specialty, etc.). • Less emphasis on exams, as they rot our brains and turn us into robots with canned empathy.	9

**126 students submitted free responses. Several responses covered multiple themes.*

Conclusion: Strategically immersing specific educational formats into an EM clerkship may help cultivate skills needed to adapt to uncertainty in clinical practice. Clinical debriefs, interprofessional role plays, simulations, communication skills sessions, discussions of emotional vulnerability, storytelling, and peer-to-peer conversations may have the most impact. Further study is required to evaluate these recommendations.

49 Raising Bias Awareness in Students

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Learning Objectives: Biases by health care providers can lead to patient morbidity and mortality. The learning objective is to identify if students are prone to biases. This will serve as a guide to for curriculum development and implicit bias training.

Introduction: Biases in health care providers have harmful or negative consequences on patient care and safety. Educating medical students to identify and override biases may improve overall patient outcomes.

Objective: To assess student perception of ED case scenarios containing biases.

Methods: Design: Two case scenarios with a resident presenting mock patients to an attending were pre-recorded; each case containing biases (see key points below). Participants: Fourth year medical students enrolled in an EM clerkship, 22 total participants. Students viewed cases and answered questions regarding diagnosis, management and treatment delays. Intervention: After answers were submitted there was a discussion on implicit bias. Students then reviewed the cases and answered questions again. Descriptive data comparing students' responses are shown.

Case 1. Aortic dissection in black male with chest pain. EMS suspected agitation from cocaine intoxication and drug seeking behavior. Anti-psychotics and benzodiazepines given in lieu of proper history and exam.

Case 2. Acute myocardial infarction in wealthy white male. EKG completed and resident at bedside within five minutes of arrival to a busy ED.

Results: A majority of students (91%) responded that substance abuse was the most likely diagnosis in Case 1 (Table 1). Post-intervention, this decreased to 50%. Delay in diagnosis responses are shown in Table 2. 23% of students felt there was no delay in care in Case 1, while 50% of students felt that there was a delay in Case 2. Comparison of pre- and post-intervention in Case 1 shows an increase to 68% of students reporting a delay in care.

Discussion: We observed that students were prone to bias, as seen by initial failure to recognize the diagnosis or delay in

care in Case 1, as compared to post-intervention responses.

Conclusion: Creating an implicit bias curriculum may raise student awareness, improve patient care, and thereby prevent morbidity and mortality.

50 Resident Views on the Importance of Promoting Diversity and Inclusion

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Learning Objectives: Describe how EM residents rate the importance of promoting diversity and inclusion in EM education and whether residents from underrepresented groups feel differently than those who are not in underrepresented groups

Background: Promoting diversity and inclusion (D&I) in EM resident education has been identified as an important issue by the ACGME. It is unclear whether the EM residents themselves place a similar importance.

Objective: We sought to determine how important promoting D&I was to EM residents and whether residents who were members of ("UR") groups had different views than those who were not UR.

Methods: EM residents from six sites were surveyed using Google Forms. Responses had no identifiers. Using a 5-point Likert scale (0-Not Important / Definitely Not to 5-Very Important / Definitely), residents were asked about their views on promoting D&I. Specifically, they were asked "How big an issue is D&I in EM?" and how much they agreed with these statements: "EM resident training needs to incorporate more D&I education," "EM residencies should have different standards for applicants with different backgrounds", and "EM residencies need to work harder to recruit more diverse residents." Residents were asked whether they identify as a member of an UR group. Overall scores for each item were calculated. Differences between the responses of UR residents and non-UR residents were calculated.

Results: 96 residents completed the survey. Residents rated the importance of D&I 4.2 (95%CI 3.9-4.4), the need for more D&I education 3.9 (95%CI 3.6-4.1), the use of different standards for some groups 2.7 (95%CI 2.4-3.0), and need to work harder in recruiting 3.6 (95%CI 3.3-3.8). When compared to those not in UR groups, those in UR groups were more likely to rate the need for more D&I education higher (4.2 vs 3.6, Difference 0.5, 95%CI -1.0 to -0.0). There were no statistically significant differences between the ratings in the other questions.

Conclusion: As expected, residents believe strongly in the importance of promoting D&I in EM resident education. Other than a need for more D&I education, there were no differences in the views of UR residents and non-UR residents.

51 Simulation Based Mastery Learning Improves Use of Personal Protective Equipment by Medical Students

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Learning Objectives: The objective of this study is to determine if simulation based mastery learning (SBML) improves proper personal protective equipment (PPE) donning and doffing by medical students.

Background: Medical students lack adequate training on how to correctly don and doff personal protective equipment (PPE). Simulation-based mastery learning (SBML) is an effective technique for procedural education.

Objective: The objective of this study is to determine if SBML improves proper PPE donning and doffing by medical students.

Methods: This was a prospective, pretest-post-test study of 155 medical students at one university-based teaching hospital on demonstration of correct PPE use before and after a SBML intervention from July-December 2020. Eligible subjects included preclinical second-year students enrolled in a Practice of Medicine (POM) course and students completing a required emergency medicine (EM) clinical clerkship. Subjects viewed a CDC training video on proper PPE use prior to the intervention. They then participated in a SBML training session that included baseline testing, deliberate practice with expert feedback, and post-testing until mastery was achieved. Students were assessed using a previously developed 21-item checklist on donning and doffing PPE with a minim um passing standard (MPS) of 21/21 items. Differences between pretest and post-test scores were analyzed using paired t-tests. Students at preclinical and clinical levels of training were compared with an independent t-test.

Results: Two participants (1.3%) met the MPS on pretest. Of the remaining 153 subjects who participated in the intervention, 151 (98.7%) reached mastery. Comparison of mean scores from pretest to final post-test significantly improved from an average raw score of 12.55/21 (standard deviation [SD] = 2.86), to 21/21(SD = 0), $t(150) = 36.3$, $p<0.001$. There was no difference between pretest scores of preclinical and clinical students.

Conclusion: SBML improves medical student competence in PPE donning and doffing in a simulated environment. This approach standardizes PPE training for students in advance of clinical experiences.