Background: Surgical mission trips constitute an important strategy by which the global surgery campaign addresses inequities in surgical disease worldwide. Travel restrictions related to the COVID-19 pandemic, however, impose a challenging limit on the reach and impact of surgical mission work. In this study, we demonstrate the utility of a remote surgical mentorship program equipped with cutting-edge augmented reality (AR) technology for sustaining global surgery capacity building efforts within the constraints of the COVID-19 pandemic.

Methods: Our remote surgical training program connects mentor and mentee surgeons via an AR-enabled digital headset and integrated smartphone application. The Vuzix® Smart Glasses system allows mentee surgeons to transmit a point-of-view livestream of activity in the operating room while receiving direct audio and visual feedback from their remote mentor in realtime. To facilitate their engagement, mentor and mentee surgeons interact using an integrated smartphone application that enables case scheduling, clinical documentation, and performance evaluation. Performance is assessed on the basis of three validated assessment tools that are well-established in the surgical education literature: the Objective Structured Assessment of Technical Skills, the Self-Confidence Scale, and the Student Evaluation of Educational Quality Survey. This survey is administered via the mobile application to both mentor and mentee surgeons at the time of their onboarding as well as after every subsequent three-month training quarter for the duration of the year-long program.

Results: To date, 83 mentor and mentee surgeons across 33 countries and 6 continents are enrolled and actively participating in our remote training program. Baseline survey data suggest a mentee surgeon cohort that stands to benefit greatly from inclusion in our training program. A majority of mentee surgeons report incomplete knowledge and anxiety in association with their specialty prior to initiating training.

Conclusion: The COVID-19 pandemic has created an urgent need for sustainable remote surgical capacity building strategies. Our remote surgical training program powered by AR-enabled telecommunication and smartphone technology constitutes a promising solution towards this end.

1University of Southern California, Los Angeles, CA, USA; 2Cedars Sinai Medical Center, Los Angeles, CA, USA

16. Reliability of a Case-Based Oral Examination by Case and Competency for Evaluation of Plastic Surgery Residents

Christine S. Wang, MD1; Jeffrey R. Kozlow, MD1; Jonathan P. Troost, PhD1; Julia F. Corcoran, MD, MHPE2

1University of Michigan, Ann Arbor, MI, USA; 2University of Illinois, Chicago, IL, USA

Background: An oral examination was developed for administration to integrated and independent residents in their final three years of training at multiple Plastic Surgery residency programs. Questions were designed to assess specific skills as outlined in the ACGME six core competencies. Using the combined scores for each case, residents were able to be given feedback on their performance. Our aim is to assess the reliability of our examination by case and by competency.

Methods: A unique 8-case oral examination was administered yearly from 2013 to 2019 at multiple Plastic Surgery residency programs. We evaluated one specific examination that was administered in Spring 2019 in 3 states to 38 Plastic Surgery residents from 8 programs. Each item in each case was labeled to target a specific core competency. There was a total of 48 patient care items, 10 medical knowledge items, 5 professionalism items, 4 practice-based learning and improvement items, 4 systems-based practice items, and 1 communication skills item. Reliability was assessed by cronbach’s alpha coefficient calculated for the entire exam, for each unique case, and for each competency.

Results: The entire 72-item examination was highly reliable (cronbach’s alpha = 0.91). The cronbach’s alpha coefficients were higher by case than by competency. 7 of the 8 cases were reliable (cronbach’s alpha > 0.70, range 0.45 - 0.82). The competency with the highest reliability was patient care (cronbach’s alpha = 0.87) and the lowest reliability was systems-based practice (cronbach’s alpha = 0.14). Communication skills could not be assessed as there was only one item.

Conclusion: The reliability of the examination in total is excellent and it shows promise to be used on a broader scale in a standardized fashion. The reliability of the cases is good and may be used to assess resident knowledge of specific case content. While patient care and medical knowledge are
reliably assessed in this exam, further work needs to be done to adequately evaluate for the other 4 core competencies.

17. Medical Trainees’ Perspectives and Use of Humor in Clinical Settings: A Systematic Review and Metasynthesis

Jordan T. Garcia, BA; Logan Dubose, BA; Angela S. Hairrell, PhD; Robert M. Milman, MD; Robert O. Carpenter, MD

Texas A&M University College of Medicine, College Station, TX, USA

Background: Clinical settings represent the site of both patient care and clinical education for medical students and residents. Both processes involve social interaction, and humor is a fundamental component of social interaction that remains underexplored in medical education. A nuanced analysis of humor is important for understanding the relations that shape everyday experiences of medical trainees. Qualitative studies are relevant in this context, as they account for the variability across different clinical environments. The aim of this study was to examine how medical trainees perceive and use humor during clinical training, by conducting a systematic review and analysis of primary qualitative studies.

Methods: In May 2021, the authors searched six databases, and selected studies according to inclusion/exclusion criteria. They assessed study quality using the Critical Appraisal Skills Program, coded data from the final selection of studies, and synthesized findings using qualitative analysis.

Results: The initial search resulted in 2,098 articles, of which 36 met the inclusion criteria. Four major themes emerged on humor use in clinical training settings: (1) types of humor; (2) managing and expressing emotion; (3) facilitating interpersonal interactions; and (4) contributions of negative humor to culture of academic medicine. Humor assumed a variety of forms in clinical settings and served a range of positive and negative psychosocial functions. Humor use was important for trainees’ psychological well-being and for connecting with patients, peers, and other health care professionals. However, aggressive humor was used to tease, ridicule, or disparage trainees; to enforce social norms; and to maintain power hierarchies.

Conclusion: Humor plays an integral role in medical students and residents’ everyday experiences in clinical settings. Positive use of humor should be understood as an important emotion regulation strategy and communication skill. In contrast, negative forms of humor can adversely impact clinical learning environments, by functioning as a subtle, yet powerful, medium for communicating prejudice and delegitimizing others, through processes unique to humor. Further research exploring more fully how humor works in clinical settings may identify ways to reduce adverse effects and promote well-being, diversity, and equity in medical education.

18. Resident Perception of Gender Disparities in Plastic Surgery Training

Pradeep Attaluri, MD; Oksana Babchenko, MD; Robert George, MD; Allison Seitz, MS; Catharine Garland, MD; Samuel Poore, MD; Michael Bentz, MD; Katherine Gast, MD

University of Wisconsin, Division of Plastic Surgery, Madison, WI, USA

Background: Multi-institution prospective studies in cardiothoracic and general surgery have demonstrated that female residents are granted less operative autonomy than male residents. Female residents were scored lower than male residents by male attendings in a multi-institution study in plastic surgery. These findings are deeply concerning, especially as we move toward competency based training. Our study sought to better understand resident-perceived gender disparities in surgical training to inform educators and help close the gender autonomy gap.

Methods: A survey was constructed based on data from a pilot study at our institution and was approved for distribution by ACAPS. The survey was distributed to U.S. Plastic Surgery Program Directors for distribution to their residents.

Results: Seventy-three residents answered the survey. Of the approximately 1000 US plastic surgery residents, the total number of residents who received the survey is unknown. Respondents were 46% female and 53% male. The majority of female respondents reported that women were treated differently from men in training (73% vs 30%, p<0.002). Differences in treatment include differential treatment by scrub technicians, female residents working harder than male residents to earn the same respect, and faculty underestimating female residents’ abilities. Female residents also reported experiencing verbal abuse from attendings more often (52%) than male residents (21%), p<0.02. Female residents are more likely to ruminate on harsh criticism (77%)