Building Surgical Character: A Dynamic Simulation Curriculum for Resident Nontechnical Skills

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Objective: Previous nontechnical skills simulation curricula in surgery have largely focused on teaching communication skills or empathy in isolation from technical skills, with feedback from one rater perspective. We aimed to develop and pilot an expanded simulation curriculum focused on situational performance of select character attributes with the goal of determining curricular feasibility, utility of a novel psychometric rating tool, and reception of curriculum by participants.

Design: The simulation took place in a simulation center. It included two contiguous parts requiring demonstration of both technical and nontechnical skills. In Part 1, participants were expected to work with a team to recognize and manage sepsis in a surgical patient. In Part 2, participants were expected to disclose a surgical error and take ownership for delays in care to the patient's family member (standardized actor). Participants received immediate feedback on technical skills; nontechnical skills were assessed by external raters using a novel global psychometric rating tool. They were also assessed by a standardized patient actor using the validated CARE Measure for empathy and via participant self-assessment, in order to provide a "360 degree" evaluation. After the simulation, participants completed a self-reflection exercise and individually debriefed with personalized feedback from research team coaches. At completion, participants were given a post-curriculum survey regarding their experience. Medians were reported for participant scores by attribute assessed. Post-curriculum feedback was reported with representative quotations and percentages.

Setting: The simulation was piloted in the Surgical Education and Activities Lab at Duke University School of Medicine during Spring 2024.

Participants: Six general surgery residents and 6 senior medical students applying into surgical specialties voluntarily participated.

Results: Ten participants (6 students, 4 residents) completed all components of the curriculum. Medical students scored higher on empathy in both parts, whereas residents scored higher on courage in both parts. The empathy scores using the CARE Measure and our global psychometric rating tool were strongly correlated ($r = 0.75$). Participants generally rated themselves higher than external raters. Nearly all participants expressed that these skills are important (9, 100%) and not addressed enough during training (8, 89%). Overall participant satisfaction was high.

Conclusions: This expanded simulation curriculum focused on character attributes was feasible and well-received by participants. Our global psychometric rating tool demonstrated partial validity as determined by strong correlation with the validated CARE Measure. This curriculum represents the first of its kind to provide deliberate practice and structured assessment focused on character attributes essential to becoming a good surgeon.