Title: Rounding Observations: Comparing and contrasting expectations, teaching and climate across disciplines

Submission Type: Innovation Highlights in Medical Education

Submitting Author: Alison Clay, MD

Submitting Author Institution: Duke University School of Medicine

Purpose: Bedside-teaching rounds is fundamental to clinical education. Observations of rounds offer a chance to witness trainee clinical skills and clinician teaching skills. Yet, rounding processes are rarely evaluated nor comparisons between different clinical services drawn. Weekly rounding observations serve to define rounding processes and observe the skills of group of teachers and learners.

Approach/Methods: Rounding observations occur weekly. Assistant deans work with clerkship directors to identify a supervising physician and share the rounding observation purpose and observer “checklist”. During rounds, the deans introduce themselves and their purpose to the rounding team, and then do not contribute to rounds in any way. A checklist was created to observe: use of physical space, general enthusiasm for medicine and teaching; communication skills of teachers and learners, learning environment, medical knowledge, feedback, and characteristics of student presentations. Overall climate is rated as negative, neutral, positive, and engaging and teaching is scored from 0-10. Student presentations are given entrustment ratings (entrustable, pre-entrustment or unable to assess) for history/physical exam, differential diagnosis, management and oral presentations. Rounding observation checklists are converted to field notes, organized into best practices and opportunities for improvement, and undergo qualitative analysis.

Results/Outcomes: Twenty-one rounding observations have been completed this quarter representing surgery, pediatrics, medicine, psychiatry, and obstetrics/gynecology services. Rounds were cardflip 48%, bedside 33% and both 19% of time. Average time spent/patient ranged 1.8 minutes/patient–45 minutes/patient. Student presentations averaged 3.6 minutes with an average of 1.4 interruptions/presentation. More than 50% of student presentations included a patient “one-liner” and overnight events. Physical exam and diagnostic testing was included in 45% and 42% of presentations, respectively, while differential diagnosis was only present in 12%. A summary assessment was present in 28.6% presentations. When the student presentation allowed assessment, students were entrustable 60% of the time for history/physical exam, 50% for differential diagnosis, 34% for management, and 67% for oral presentation. The average teaching score was 5.36 (range 1-8) and only 11% of rounds were rated as neutral to slightly negative, and 39% were rated as positive. Field note observations for rounding best practices and opportunities for rounding improvements resulted in three themes: 1) Anticipatory teaching/care for learning: providing feedback and leadership opportunities, modeling positive behaviors, setting expectations, and care for each other 2) Care of patients: involving interdisciplinary teams, patient engagement, and providing comprehensive patient-centered care 3) Modeling professionalism: Attending physician teaching behaviors with students, caring behaviors with patients and positive communication skills of learners and teachers.
**Discussion:** Teaching is universally present on clinical services, but may not be recognized by students. Faculty are hungry for feedback. Practical examples of best practices can easily be shared. Opportunities for improvement across the health system include systematic use of one-liners, summary assessments, description of clinical reasoning for differential diagnosis, and recaps for the patient care plan.

**Significance:** Presence during rounds also demonstrates the importance of teaching during rounds from the SOM to “front-line” educators, while allowing the opportunity to meet front-line educators across clerkships and share some of our expectations for teaching.
Title: SimuVersity Medical Center: Online interprofessional simulation game for teaching healthcare quality operations

Submission Type: Innovation Highlights in Medical Education

Submitting Author: Jeffrey Borckardt, Ph.D.

Submitting Author Institution: Medical University of South Carolina

Purpose: This novel online simulation game/competition was designed to complement interprofessional coursework in order to teach students to understand how different professions can be integrated into health systems to optimize health, wellness and overall system success. After playing in the SimuVersity competition, students should be able to identify key indicators health system administrators use to evaluate the overall success of a health system including finances, patient satisfaction, patient safety, research activity and clinical outcomes. Additionally, students should be able to identify healthcare personnel factors that influence these key indicators including: research productivity, visit efficiency, interpersonal skills, team collaboration, performance improvement and quality improvement training.

Approach/Methods: A total of 942 graduate health professional students (including 180 medical students) competed on interprofessional teams (2-3 students each) to design, staff and operate an imaginary academic health center over a simulated 8-week period. Students used the animated SimuVersity framework to run patients through their simulated health systems while making staffing adjustments and assigning staff trainings in order to try to produce the best patient satisfaction scores, best patient safety records, best clinical outcomes, highest research productivity, and best profitability records. SimuVesity is an online game-like interface that runs in an internet browser, and it tallies cumulative revenue, safety, outcomes, and satisfaction scores as a function of the operating decisions made by the student teams.

Results/Outcomes: Student teams were given awards for designing the systems with the best patient satisfaction scores, best patient safety, best clinical outcomes, highest research productivity, and best profit margins. 96% of the students indicated that the learning activity helped them be able to describe how different health professions can be integrated into health systems to optimize patient health, wellness and overall system success. 86% agreed that the activity made them able to identify key indicators of health system success, and 87% agreed that the activity helped them to understand healthcare personnel factors that influence key quality indicators.

Discussion: This project demonstrated the feasibility of using a large-scale, "live", online hospital simulation competition to teach some basic concepts related to interprofessional care and practical healthcare system issues. This learning opportunity oriented students to important healthcare success indicators while teaching them the importance and relevance of delivering highly coordinated interprofessional care.

Significance: Internet gaming interfaces and simulations like SimuVersity may provide engaging ways to give students unique experiential learning opportunities that can help them gain more insight and knowledge about complex health systems while helping them understand how best to operate in such systems in order to meet the demands of the healthcare industry as practitioners.
**Title:** Tackling Implicit and Explicit Bias Through Objective Structured Teaching Exercises for Faculty

**Submission Type:** Innovation Highlights in Medical Education

**Submitting Author:** Patricia Poitevien, MD/MSc

**Submitting Author Institution:** New York University Langone Health / Bellevue Medical Center

**Purpose:** Numerous studies (1,2,3) have demonstrated that clinicians have implicit biases which contribute to important healthcare disparities. Additionally, clinicians have written several narratives (4,5,6) describing the lasting impact of explicit bias expressed against them, in both training and practice. Despite these findings, few faculty development (FD) resources exist to coach faculty to recognize and address bias.

**Approach/Methods:** We utilized an Objective Structured Teaching Exercises (OSTE) as a FD tool to teach faculty how to identify and tackle both explicit and implicit bias. Our objectives were: 1. To design a workshop using a two-station OSTE on recognizing and managing implicit and explicit bias. 2. To assess feasibility and acceptability of the program. 3. To assess the effectiveness of the program using a retrospective pre/post survey. We created a two-station OSTE utilizing actors as standardized learners (SL). At one station, faculty helped an SL to manage explicit bias against her expressed by a family. At the second station, faculty precepted a SL who exhibited implicit bias in their discharge plan. Each station consisted of 10 minutes performing the task, 5 minutes of self-evaluation by faculty, and 5 minutes of verbal and written feedback by the SL using a checklist. Faculty were asked to complete the Implicit Association Test (IAT) prior to the workshop. Additionally, faculty were provided a brief didactic on bias prior to the OSTE and a debriefing following the OSTE. Participants completed an anonymous workshop assessment, using a Likert scale of 1 to 5 (exceeding expectations) to assess the OSTE and a Likert scale of 1 – 10 (Effective) for the retrospective pre-post survey.

**Results/Outcomes:** 41/47 (87%) participating faculty completed the workshop assessment. The mean overall OSTE rating was 4.7 (range 4 – 5). Participants positively rated the cases and SLs as realistic and the SL feedback, didactics and debriefing as helpful (all means > 4.5). In the retrospective pre/post survey, participants reported a significant increase in their skills in teaching trainees to recognize and address bias (from 6.0 to 7.9, p < 0.001). Additionally, they reported significant improvement in their own skills in recognizing and addressing bias (6.2 to 8.1, p < 0.001). Faculty informal verbal feedback noted that the opportunity to practice these skills in a simulation environment was especially valuable given the charged subject matter.

**Discussion:** It is feasible to design and implement a workshop on bias using OSTEs, which is well received by pediatric faculty. Faculty reported their skills in recognizing, managing and teaching about bias improved. The limitation of this model is the time and funding required to train actors. The workshop was offered during time previously set aside for faculty development, and did not require an additional time commitment from participating faculty.

**Significance:** Implicit and explicit bias significantly impact undergraduate and graduate medical education. Faculty members play a key role in teaching and advising trainees who encounter or express
bias, however, there may exist a knowledge gap for faculty. Additional assessment of faculty skills in recognizing and addressing bias is imperative. This innovative FD model may be an important first step.
Title: Can faculty development be automated? Lessons learned from four pilot projects in three years

Submission Type: Innovation Highlights in Medical Education

Submitting Author: Janet Corral, PhD

Submitting Author Institution: University of Colorado School of Medicine

Purpose: Reaching busy faculty to hone their teaching skills through traditional faculty development sessions is challenging: traditional methods are time-consuming and, at least locally, met with low attendance. Just-in-Time faculty education (JITFE), where evidence-based tips are sent as cognitive prompts immediately prior to teaching, is a solution that has been successfully implemented for three years to clerkship and preclerkship instructors.

Approach/Methods: Mixed methods data collection involving interviews, feedback from course/program administrators, opening rates, and self-assessment surveys were triangulated using a design-based research approach to continuously improve JITFE towards automation. Machine learning was built to automate JITFE sendouts given complex clinical and teaching schedules, as well as collect feedback and ratings of instructional effectiveness from faculty and learners.

Results/Outcomes: There are multiple lessons learned. For content, the JITFE emails were initially developed to cover 5 topics common to most clinical settings (setting expectations, being a great preceptor, direct observation, giving effective feedback, assessing learners). Use in the preclinical small group setting necessitated different topics (e.g. active learning, effective small groups). Delivery was expanded to text messaging and email; email was more popular with faculty. Timing sendouts differs for clinical preceptors (i.e. right before clinical shift) and preclinical instructors (i.e. several days in advance, and same day as teaching). Four pilots (3 clinical, 1 preclinical) lasting 4-12 months in duration have average opening rates of 31.5% (community-based primary care), 35.8% (community-based preceptors), 42.2% (hospital-based medicine), and 30.8% (preclerkship small groups). These rates are comparable or higher to average attendance and penetration of traditional faculty development in these teaching settings. There is a range of faculty behaviors, including complete non-responders, those who open earlier messages and ignore later JITFE messages, and those who consistently open all JITFE messages. Faculty self-assessment and student feedback remains low (<5% across rotations), which educational leadership hypothesizes is due to busy end-of-day schedules and the need for improved dissemination. Leaders’ advocacy in community-based settings has increased awareness in time for Jan 2018 clinical teaching schedules, the results of which will be reported at LSL 2018.

Discussion: There are four take-home messages. First, reaching all faculty is complex. Even traditional methods have imperfect results. Second, this work follows Bereiter (2002) that educational innovations require repeated cycles of data collection and refinement before success is achieved. Changing behavior is a long-term undertaking that will likely have better results after continued successive JITFE iterations over years. Third, this project is low-cost, leveraging free or open source tools to facilitate JITFE. Lastly, automation administratively facilitates reaching more faculty, especially in community-based settings, and sets the stage for rapid performance feedback to faculty using intelligent tutors.
Significance: Across the AAMC Academies Collaborative, multiple schools have reported for several years this increasing challenge of reaching busy faculty, whether local or distributed across clinical sites. Innovation is needed. This project provides a low-cost approach with at least similar penetration as compared to the time-consuming face-to-face events, which are reserved for community building and advanced skills. The methods and lessons learned are shared openly to foster success among all AAMC schools.