Purpose: The AAMC has identified 13 Entrustable Professional Activities (EPAs) that all entering residents should be expected to perform on day 1 of residency without direct supervision regardless of specialty choice (Core Entrustable, 2014). We developed an immersive, integrated Night on call (NOC) simulation to study strategies to assess readiness for internship by creating measures of competence and judgments of entrustment of all 13 Core EPAs from the perspective of patients, nurses, attendings, and peers (Szyld, 2016).

Approach/Methods: NOC is a 4-hour simulation, during which a medical student rotates through a series of authentic clinical coverage scenarios including: 4 standardized patient (SP) cases with varying degrees of complexity, each of which require first answering a call from a standardized nurse, (SN), then evaluating a SP with the SN in the room, making immediate management decisions and writing a coverage note; a phone call to an attending (Attn, an experienced clinician) to orally present (OP), and discuss the case formulation of a clinical question and finding a best answer using digital library resources (EBM), a test of ability to recognize a peer demonstrating pre-entrustable culture of safety and quality skills, and a handoff of 4 cases to a peer (HOff, portrayed by a senior medical student). Competency assessments were based on validated tools where available (Ng, 2015), and in addition each rater provided an assessment of entrustment. This included 9 raters providing a total of 16 entrustment judgments: 4 SPs and 3 SNs (1 rating competency and 1 rating communication each), 1 Attn based on OP, 1 peer rating based on the HOff (1 item each). Raters were trained in both case portrayal and rating reliability. This study is IRB approved.

After exploring the relationships among competency measures and entrustment judgements, to test the hypothesis that NOC measures trustworthiness of our near graduates, we conducted a one-factor (entrustment) confirmatory factor analysis (CFA) with the 16-entrustment items allowing the ratings from the same raters and between raters on the same case to correlate. The CFA was conducted with a means and variance adjusted weighted-least squares estimation (WLSMV) to take the ordinal distributions of the entrustment items into account (Brown, 2015).

Results/Outcomes: 73 medical students (39 women; Age 26.5 (+ 2.6) years) completed NOC. The one-factor CFA model fit the data (χ² = 155.27, df = 112, p < .001, CFI = 0.97, TLI=0.97, RMSEA = 0.07, p>0.05). All but 2 of the 16 factor loadings were greater than 0.3, (Attn factor loading = 0.23 and the SP ratings from the first clinical case of NOC sequence (0.21).

Discussion: A single-factor model with 16 measures fit the entrustment framework within an ecologically valid simulated workplace suggesting that an individual student’s clinical trustworthiness is measurable across discrete work activities. Next steps include establishing validity evidence for NOC and behaviorally valid entrustment thresholds for the 13 EPAs.

Significance: Our findings inform the measurement and tracking of entrustment decisions by providing a simulated “360-degree” assessment framework for the educational handoff from medical school to residency to ensure quality of care and patient safety.


Level of Audience: Mid-career
Focus of Presentation: Continuum
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ABSTRACT BODY:

**Purpose:** Before implementing a global rating form (GRF) aligned with EPAs for clerkships it is important to understand which EPAs physicians can realistically assess in the clinical environment. To address this question we coded comments from a sample of clerkship global rating forms at the University of Utah School of Medicine (UUSOM).

**Approach/Methods:** We sampled all GRFs (1288) from 2 cohorts of students’ (N = 181) first and last clerkship rotations in AY2014-15 and AY2015-16. Physicians (N = 493) were required to provide comments about student strength(s) and area(s) for improvement. Two researchers independently coded each comment by topic: EPA or other major non-EPA topic (mentioned on 50 or more GRFs) using grounded theory for the latter categorization. Any disagreement in coding was discussed until consensus was reached. Comment topics that were not mentioned on 50 or more of the GRFs were omitted from any analyses. Frequencies and percentages of each EPA and non-EPA topic mentioned were computed. The percentages of mentions for EPAs 1-7 were computed since UUSOM clerkship directors identified these EPAs as intermediate-high priority topics for clerkship instruction and assessment.

**Results/Outcomes:** There were 2387 strength specific comments and 1411 improvement specific comments about EPAs or other major non-EPA topics. Only 29% (696) of strength comments compared with 55% (770) of improvement comments dealt with EPAs 1-7. Twelve percent of the strength comments dealt with EPA1-interviewing/examination, 8% dealt with EPA6-presentation, and 5% or less related to EPAs2-5, 7. Other frequent strength comments were about EPA9-teamwork (15%) or non-EPA topics including fund of knowledge (10%), work ethic (8%), and learning attitude (7%). Twenty-three percent of improvement needed comments dealt with EPA6-presentation, 13% with EPA2-diagnosis, 12% with EPA1-interviewing/examination, and 5% or less with EPAs3-5, 7. Other frequent improvement comments discussed fund of knowledge (19%) and reading (14%). Raters often addressed aspects of EPA 1 separately; for example, a student could have rapport with families but needed to improve physical examination skills. Raters also frequently commented on diagnostic ability separately from ability to articulate an assessment and plan.

**Discussion:** Physicians rarely comment on EPA specific areas of improvement for clerkship students, but slightly more than half of their strength comments addressed an EPA. They frequently comment on both strengths and areas of improvement for EPA 1, which may suggest that the EPA needs to be split into separate domains. EPA2 might be better thought of as a global clinical reasoning activity since raters commented on diagnostic ability and assessments/plans separately.

**Significance:** Many medical schools are using the EPA framework for developing curriculum goals and assessment. This study suggests that further refinement may be needed for EPAs 1 and 2. Furthermore, clerkship global rating forms may not be the best way to address progress in EPAs since most physicians’ comments are related to non-EPA aspects of students performance.

**References:** n/a
How to “Right” Admission Orders: An Entrustment Evaluation for Sub-Internship Students

John Ragsdale

Highlights in Medical Education

Purpose: The Core Entrustable Professional Activities (EPAs) for Entering Residency includes an expectation that graduating medical students should be entrusted to “enter and discuss orders and prescriptions”.¹ In June 2014, no evaluation of this EPA existed in our curriculum. In addition, an objective assessment of the patient care domain (separate from global performance evaluations) was needed to meet the course objectives of the Internal Medicine (IM) Sub-Internship. To meet both of these goals, I created and implemented an evaluation designed to assess both competence and medical decision making in the task of writing admission orders for a new patient.

Approach/Methods: The case-based evaluation was designed to assess fourth-year medical students’ ability to write an admission order set for a hypothetical patient based on a provided history and physical exam. I created three history and physicals using core IM diagnoses with sufficient detail that decisions could be made about all admission order decisions, including home medications, intravenous fluids, diet, etc. Each student electronically submitted a list of admission orders for each of the three cases which was graded using a rubric. Prior to implementation, the rubrics were pilot tested with faculty and consensus was reached on performance criteria. The rubrics included items assessing medical decision making (“MDM subscore”), which was specific to each case, as well as items assessing components of a complete admission order set (“EPA subscore”), which were the same across cases. Both of these subscores were weighted equally. These evaluations were administered for two years to all students who enrolled in the IM Sub-Internship. The total percentage correct for all three cases composed 15% of the final course grade. Students were required to achieve a passing score of 70% on this evaluation to pass the course, otherwise they were required to successfully pass a remediation case.

Results/Outcomes: 101 students completed the evaluation between July 2014 and March 2016. Of these, 99 (98.0%) successfully passed the evaluation on the first attempt. Two students (2.0%) were identified who required a remediation case, which they both successfully passed. The overall combined mean score for all three case was 88.6% (SD 8.5%), with a mean for the MDM subscore of 81.6% (SD 14.2%) and for the EPA subscore of 95.6% (SD 7.7%). Scoring the cases with the rubric required approximately three minutes per student per case.

Discussion: The ability to write an admission order set completely and accurately is a skill that is expected of interns early in their residency training.² This evaluation objectively measured the students’ ability to perform this EPA. It also provided data about their medical decision making that supplemented the clinical performance evaluations. The true value of the evaluation was in identifying the two students who required remediation prior to entrustment for this task. This deficiency would not have been recognized through their clinical evaluations completed by faculty and residents. Overall, students tended to perform better on the EPA subscore than the MDM subscore. This difference may reflect the challenge of incorporating clinical reasoning into this procedural task, which is a necessary component of this EPA. In fact, applying clinical reasoning to patient care has been cited as a skill program directors think is an important curricular goal of fourth year.³

Significance: An EPA evaluation administered outside the clinical environment can provide useful data, which as a supplement to existing clinical performance evaluations, can aid in the decision about entrustment. The process for creating this evaluation could be replicated in other sub-internships in other disciplines.


