

## 21 Emergency Medicine Residents Consistently Rate Themselves Higher than Attending Assessments on the ACGME Milestones

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**Background:** In 2012, the Accreditation Council for Graduate Medical Education (ACGME) introduced the Next Accreditation System, which implemented milestones to assess the competency of emergency medicine (EM) residents. While attending evaluation and feedback is crucial for resident development, perhaps equally important is a resident’s self-assessment. If a resident does not accurately self-assess, clinical and professional progress may be compromised.

**Objectives:** Our study compared EM resident milestone evaluation by EM faculty with the same residents’ self-assessment.

**Methods:** This observational cross-sectional study was performed at an academic EM residency. Twenty-five randomly chosen residents completed self-assessments using eight ACGME milestones deemed by residency leadership as “representative” of core EM principles. These residents were also evaluated by 20 faculty members. The milestones were evaluated on a nine-point scale. The average difference between resident self-ratings and faculty ratings were calculated. Sample t-tests were used to determine statistical significance of the difference in scores.

**Results:** Eighteen residents evaluated themselves. Each resident was assessed by an average of 16 attendings (min=10, max=20). Residents gave themselves higher ratings than attendings did for each milestone examined (all statistically significant with  $p < 0.0001$ ).

**Conclusions:** Residents over-estimated their abilities in every milestone assessed. This underscores the importance of feedback and assessment transparency. More attention needs to be paid to methods by which residency leadership can make residents’ clinical ability self-perception more congruent with that of their teachers and evaluators. The major limitation of our study is small sample size of both residents and attendings.

## 22 Emergency Medicine Selective Enhanced Mid-Clerkship Feedback Process Using an iPad Application

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**Background:** Mid-clerkship feedback (MCF), required by the Liaison Committee on Medical Education, ensures that students receive formative feedback during clerkships. However, reflective metrics are not commonly used in MCF. New York University School of Medicine (NYUSOM) uses an iPad app to collect students’ self-assessment data alongside preceptor assessment of student performance during the MCF.

**Educational Objectives:** We introduced the app into our emergency medicine Selective (EM-Sel) and compared its functioning to that of a paper rating form.

**Methods:** Starting in March 2014, all NYUSOM students receive iPads for use in clerkships. NYU developed an app that presents a 6-item form to students [S] to self-rate and then to their preceptors [P] to submit ratings during the MCF process. The items are based on the Reporter-Interpreter-Manager-Educator framework, and Professionalism and Procedural Skills. Upon completion, the app displays a composite view that frames the MCF conversation. This data is stored in our data warehouse. For comparison, we also present the ratings collected on paper forms for the students without iPads. All sessions were conducted by the same two preceptors.

**Results:** From January to November 2014, 72 students engaged in an EM-Sel MCF. The app was used in 26 sessions and the paper form was used in 46 sessions. On review, we had complete PRIMES ratings data from both students and preceptors for 100% (26/26) of the iPad sessions but only 63% (29/46) of the sessions with paper forms.

Of the 72 data sets collected, 55 paired ratings were complete (76%); 26 were collected on iPads and 29 were collected on paper. Average [S-P] rating concordance ranged from 56% for Professionalism to 78% for Interpreting.

**Conclusion:** Use of this app resulted in complete documentation of [S-P] ratings for the Em-Sel MCF, which

**Table 1.** Rating discrepancies.

Sub-competency	Mean difference ± standard deviation	Limits of agreement	95% CL mean difference	p-value
Communication	1.1203 ±1.6534	(-2.1865,4.3299)	(0.9295,1.3110)	<0.0001
Diagnosis	1.2818 ±1.6048	(-1.9278,4.4914)	(1.0966,1.4669)	<0.0001
Diagnostic studies	1.3368 ±1.5768	(-1.8168,4.4904)	(1.1548, 1.5187)	<0.0001
Disposition	0.9759 ±1.7048	(-2.4337,4.3855)	(0.7793, 1.1726)	<0.0001
Emergency stabilization	0.7938 ±1.5309	(-2.2680,3.8556)	(0.6172, 0.9704)	<0.0001
History and physical	1.2921 ±1.7441	(-2.1961,4.7803)	(1.0909, 1.4933)	<0.0001
Multi-tasking	1.3540 ±1.6448	(-1.9356,4.6436)	(1.1642, 1.5437)	<0.0001
Team management	0.5808 ±1.4772	(-2.3736, 3.5352)	(0.4103, 0.7512)	<0.0001

was not seen with the paper form. Storage of complete data allows students and preceptors to reflect on the contents of the MSF sessions at a later date.

## 23 Enhancing Resident Engagement and Knowledge Retention through Curricular Modifications

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**Background:** Emergency medicine is a specialty filled with individuals ill suited to sit in a lecture hall for long periods. Despite this, 5 subsequent hours of 50 minute blocks are commonly used to meet Residency Review Committee conference requirements. These prolonged sessions test the patience of the audience and impact knowledge retention.

**Educational Objectives:** At Washington University School of Medicine, we've implemented changes to combat boredom while enhancing retention.

**Curricular Design:** We addressed the issue of fatigue and boredom when sitting through 5 hours of lecture by dividing lectures into 25 minute slots rather than the traditional 50 minutes. This rapid-fire lecture style minimizes lapses in attention, which studies have shown occur roughly every 10-15 minutes. One challenge has been preventing lecturers from delivering 50 minutes of content in only 25. Additionally, the audience must get adequate breaks, as most people cannot maintain continuous attention for more than about 45 minutes. We addressed this obstacle by using a timer that runs continuously during conference, giving the speaker a 5 minute warning followed by an alert that their lecture time is over. This dramatically improves the ease in which a long-winded lecturer can be curtailed. Finally, we implemented spaced-repetition. This is a well-proven method of enhancing knowledge retention. The key points are repeated to the residents 3 times. First during the lecture itself, second as a rapid-fire summary of the entire day of content at the end of conference, and a third time as a faculty run review the following week.

**Impact:** As this is a cutting-edge curricular change, we have little evidence to its effectiveness. While we don't have internal evidence, there is a large body of educational literature to support these initiatives. Conference feedback and evaluations improved dramatically over the past six months. Our hope is that inservice scores will reflect the benefit of our new curricular design.

## 24 Exploratory Factor Analysis of Patient Ability to Differentiate Individual Core Competencies During Evaluation of Resident Clinical Performance

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**Background:** Patient evaluation of resident performance has been included as part of 360 degree evaluations by the Residency Review Committee of Emergency Medicine. Despite their use in most residency programs, little research has been done to evaluate the metrics of patient evaluations.

**Objectives:** We sought to determine the ability of emergency department (ED) patients to differentiate individual core competencies when asked to evaluate resident clinical performance.

**Methods:** This prospective observational study was conducted at an urban ED with a postgraduate year 1-3 emergency medicine residency program comprised of 30 residents. Each resident was evaluated by approximately 10 patients over a 2 month period on a competency-based evaluation questionnaire. The questionnaire was administered to patients by a trained research assistant and resident performance on 8 competency based items was rated on a fixed 9 point scale. Surveyed patients were selected randomly by the research assistant during clinical shifts from the patient log without resident knowledge. Pearson correlation coefficients across each resident's score for the competency based questions were analyzed in a correlation matrix.

**Results:** During the 2 month period of the study 286 patients evaluated 29 residents yielding an average of 9.8 evaluations per resident. To determine whether patients were able to separate and rank residents on the individual competencies we compared Pearson correlation coefficients across each resident's score for the competency based questions. The resulting correlation matrix yielded 28 combinations. The patient rankings for all of these scores were highly correlated. The correlations ranged from 0.78 to 0.97 and all were significant at  $p < 0.001$ .

**Conclusion:** When patients evaluate resident performance using a competency based form, the results obtained across multiple competency based questions are highly correlated. Patients do not discriminate well between individual competency based constructs when performing clinical evaluations of residents.

## 25 Faculty Prediction of In-training Examination Scores of Emergency Medicine Residents: A Multi-center Study

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**Background:** The Emergency Medicine In-Training Examination (EMITE) is one of the few valid tools for medical knowledge assessment in use by emergency