

## 36 Residents do Not Find Milestones to be a Useful Component of End-of-Shift Evaluations

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**Background:** In 2013, the ACGME and the American Board of Emergency Medicine introduced the Emergency Medicine (EM) Milestone Project, a collection of competency-based developmental outcomes intended to demonstrate resident progression during training. Many programs expect faculty to complete milestone-based end-of-shift evaluations (ESEs) for each resident shift utilizing a rating scale (levels 1 to 5). Commonly cited problems with this approach include faculty variation in reporting milestone levels, lack of perceived relevance, and poor compliance.

**Objectives:** We aim to address concerns about the utility of milestone-based ESEs by creating a new evaluation tool - one that de-emphasizes rating scales by using a binary milestone checklist and requires comments; and to determine whether the new tool is associated with improved resident satisfaction.

**Methods:** This is a prospective observational study including voluntarily participating residents at a single EM residency. In March 2016, an 8 item survey was sent to gauge resident satisfaction with the milestone-based rating scale ESE employed at the time, and to recruit suggestions for how to improve or change it. In July 2016, a new ESE tool was implemented, and the survey was repeated in November 2016. The primary outcome was resident satisfaction as defined by a 5-point Likert scale. Comparison was made using a t-test to evaluate for statistical significance.

**Results:** A total of 41/54 (76%) residents responded to the first survey, and 42/54 (78%) to the second survey. Mean satisfaction scores improved after implementation of the new ESE by 0.46 points (3.48 versus 3.02; 95% CI 0.05 to 0.85). Although satisfaction improved, residents consistently rated the milestone component of ESEs poorly with only 2/41 (4.9%) and 2/42 (4.8%) finding them useful in the first and second surveys, respectively. Written and in-person feedback were consistently recognized as the most useful forms of evaluation with 34/41 (83%) and 29/41 (73%) endorsing their utility in the first survey, and 31/42 (74%) and 33/42 (79%) in the second survey, respectively.

**Conclusions:** Written and verbal comments are the most useful components of resident evaluation, while milestone rating scales and checklists are not perceived as useful. ESEs that de-emphasized rating scales and encourage comments are associated with improved resident satisfaction.

## 37 Residents in Emergency Medicine Comparative Survey on Technology (REMCAST)

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**Background:** Innovations in medical education have been occurring rapidly in the field of EM. Traditional educational resources are being supplemented by a variety of electronic educational resources. One of the most impactful changes has been the growing popularity of educational podcasts. EM residents utilize these medical education podcasts but little data exists to determine whether it is more worthwhile to listen to podcasts or spend this time learning in more traditional manners.

**Objectives:** The purpose of this study was to correlate time spent utilizing textbooks, questions banks, and medical education podcast media to scores on the ABEM in-service exam for EM residents.

**Methods:** A confidential survey created with SurveyMonkey was sent to EM program directors via the CORD listserv with instructions to distribute the survey to their residents. 134 EM residents responded to the survey, with 104 residents providing their ABEM in-service exam score. The survey asked them to indicate how many hours in a typical week they read EM textbooks, use Rosh Review, and use medical education podcasts. The survey also asked the respondents for their year in residency training and to qualify which podcasts they utilized. A Kendall's Tau value was calculated to correlate each question response with exam scores.

**Results:** Having more years of residency training was associated with a higher in-training exam score ( $p < 0.0001$ ). Listening to EM Basic was associated with a higher in-training exam score ( $p = 0.0194$ ). Listening to EM:RAP was associated with a lower in-training exam score ( $p = 0.0482$ ). Total hours per week listening to podcasts ( $p = 0.6060$ ), using Rosh Review ( $p = 0.6940$ ), or utilizing textbooks ( $p = 0.0574$ ) did not reach statistical significance.

**Conclusions:** Our findings indicate that there was no significant difference in exam scores based upon total hours per week spent utilizing textbooks, question banks, or podcasts. Larger studies may be needed to find a significant difference between the different modalities. EM Basic's positive correlation with exam scores is likely due to its emphasis on content most likely to be tested by ABEM. EM:RAP emphasizes cutting edge new research, which is less likely tested on the ABEM in-service exam. The C3 project from EM:RAP may fill a more relevant role for core content teaching in the future.

**Table 1.** ABEM Exam Scores by Resident Demographics. N= 134.

	Overall Incidence, N (%) or Median (IQR)	Exam Scores, Median (IQR), if applicable	Kendall's Tau Correlation (p-value)
Total No. of Responders	N=134	N/A	N/A
ABEM Exam Score	75.0 (70.0 – 85.0)	75.0 (70.0 – 85.0)	N/A
Missing Data	N=30		N/A
Year of Residency			
PGY 1	14 (10.7%)	74.5 (74.3 – 74.8)	0.321 (p < 0.0001)
PGY 2	53 (40.5%)	72.0 (69.0 – 75.0)	
PGY 3	56 (42.7%)	82.0 (75.0 – 88.0)	
PGY 4	8 (6.1%)	82.0 (76.0 – 84.0)	
Missing Data	N=3		
Listened to At Least 1 Podcast	124 (92.5%)	75.0 (71.0 – 85.0)	0.110 (p = 0.1788)
Particular Podcasts			
EMCrit	77 (57.5%)	75.0 (72.0 – 85.0)	-0.065 (p = 0.4269)
EMRAP	112 (83.6%)	76.0 (72.0 – 86.0)	-0.168 (p = 0.0482)
Ultrasound	16 (11.9%)	75.0 (70.0 – 81.0)	-0.029 (p = 0.7252)
EM Basic	47 (35.1%)	74.0 (70.0 – 75.8)	0.192 (p = 0.0194)
Core ME	8 (6.0%)	75.0 (73.0 – 79.0)	0.009 (p = 0.9172)
ERCast	19 (14.2%)	82.0 (74.0 – 90.0)	-0.136 (p = 0.0973)
FOAMCast	15 (11.2%)	75.0 (74.0 – 88.0)	-0.078 (p = 0.3409)

**Table 2.** ABEM Exam Scores by Time Spent Using Study Materials. N= 134.

	Overall Incidence, N (%) or Median (IQR)	Exam Scores, Median (IQR), if applicable	Kendall's Tau Correlation (p-value)
Total No. of Responders	N=134	N/A	N/A
ABEM Exam Score	75.0 (70.0 – 85.0)	75.0 (70.0 – 85.0)	N/A
Missing Data	N=30		N/A
Hours per Week of Podcast			
<1	36 (27.1%)	75.0 (70.5 – 83.0)	0.038 (p = 0.6060)
1–2	45 (33.8%)	76.5 (70.0 – 86.0)	
2–3	18 (13.5%)	78.0 (70.0 – 81.0)	
3–4	13 (9.8%)	74.5 (68.3 – 77.3)	
4–5	9 (6.8%)	74.0 (72.0 – 84.0)	
5–6	2 (1.5%)	92.0 (92.0 – 92.0)	
6–7	2 (1.5%)		
7–8	0 (0.0%)		
8–9	0 (0.0%)		
9–10	4 (3.0%)	88.0 (85.0 – 89.0)	
10–11	2 (1.5%)	80.0 (74.5 – 85.5)	
11–12	0 (0.0%)		
12–13	1 (0.8%)	85.0 (85.0 – 85.0)	
13–14	0 (0.0%)		
14+	1 (0.8%)	56.0 (56.0 – 56.0)	
Hours per Week of Rosh Review			
<1	48 (36.4%)	75.0 (70.0 – 85.0)	-0.030 (p = 0.6940)
1–2	46 (34.8%)	79.0 (73.0 – 85.0)	
2–3	17 (12.9%)	70.0 (65.0 – 74.0)	
3–4	8 (6.1%)	78.5 (68.3 – 86.5)	
4–5	3 (2.3%)	90.0 (90.0 – 90.0)	
5–6	3 (2.3%)	86.0 (71.0 – 88.5)	
6–7	4 (3.0%)	74.5 (73.0 – 79.3)	
7–8	0 (0.0%)		
8–9	0 (0.0%)		
9–10	1 (0.8%)		
10–11	0 (0.0%)		
11–12	1 (0.8%)	82.0 (82.0 – 82.0)	
12–13	0 (0.0%)		
13–14	0 (0.0%)		
14+	1 (0.8%)	74.0 (74.0 – 74.0)	
Hours per Week of Textbooks			
<1	72 (54.1%)	77.0 (73.0 – 86.0)	-0.148 (p = 0.0574)
1–2	31 (23.3%)	75.0 (68.5 – 82.0)	
2–3	15 (11.3%)	68.0 (61.0 – 72.0)	
3–4	7 (5.3%)	78.0 (70.5 – 85.5)	
4–5	4 (3.0%)	72.0 (71.0 – 81.0)	
5–6	3 (2.3%)	80.5 (74.8 – 86.3)	
6–7	0 (0.0%)		
7–8	0 (0.0%)		
8–9	0 (0.0%)		
9–10	0 (0.0%)		
10–11	0 (0.0%)		
11–12	0 (0.0%)		
12–13	0 (0.0%)		
13–14	0 (0.0%)		
14+	1 (0.8%)	74.0 (74.0 – 74.0)	

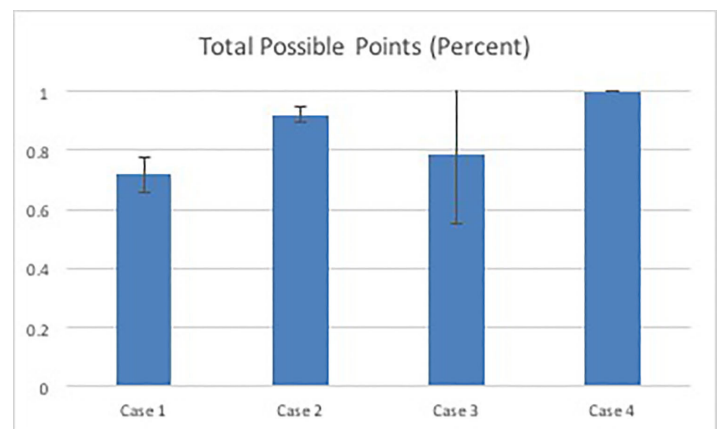
to 50%. Emergency Medicine residents are taught to recognize and treat septic patients, however, there is little teaching on proper documentation to be compliant with CMS sepsis core measures.

**Objectives:** Our objective was to improve resident compliance with CMS sepsis core measure documentation. We hypothesized that residents would improve their overall documenting efficiency and compliance through simulated cases.

**Methods:** 40 EM residents ranging from PGY 1 - PGY4 were randomly assigned to 6 groups. Residents were given a brief tutorial on CMS quality measures: SEP-1, Early Management Bundle, Severe Sepsis and Septic Shock. Residents were presented 4 clinical vignettes (SIRS without infection, severe sepsis, 2 septic shock) on power point slides. Using the institution's EMR in training mode, resident groups were timed and points awarded for each proper medication administered, reassessments, and final diagnoses.

**Results:** The overall total time required to meet CMS quality measures improved significantly from case 1 (377 +/- 88 sec) to case 4 (173 +/- 37 sec), p=0.001. Resident accuracy improved from 71% of total available points in case 1, to 100% of available points in case 4, p<0.001. Repetition via shock cases 3 and 4 showed a trend toward improved accuracy (79% vs. 100%, p=0.07) without a significant difference in time (150 +/- 119 sec vs. 174 +/- 38 sec, p=0.65).

**Conclusions:** Through a 4 case clinical vignette simulation, residents can become more efficient and accurate in complying with CMS sepsis quality metric documentation. This type of resident simulation may help improve CMS documentation compliance, improve patient care, and improve hospital reimbursement.



## 38 Simulating Sepsis: Can Residents Improve CMS Compliance Through Simulation?

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**Background:** Over 1 million patients each year are diagnosed with sepsis with mortality ranging from 28%