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Emergency Medicine Resident On Shift Clinical Teaching Efficacy as Measured by Student Evaluation and Self-Reflection Using a Previously Validated Metric

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level of the learners (residents vs. students) was a between-groups factor and technology use (used vs. not used) was a within-groups factor to determine if technology use improved performance. To identify where technology use may have influenced specific critical actions, we used the Fisher's Exact Test to analyze 2X2 contingency tables.

**Results:** When teams were allowed to use technology they completed more critical actions correctly ( $p < .001$ ; Table 1). The contingency table analysis showed that the difference was due to the critical actions involving identifying an unknown pill ( $p < .001$ ; Table 2). Upon removing the pill identification items there was not a significant difference in performance when using technology and when not using technology (Table 1). Resident teams were significantly more accurate and completed the cases more quickly than the student teams ( $p < .001$  respectively; Table 1).

**Conclusions:** The use of technology was not related to how quickly the teams completed the simulation. Pill identification was the only critical action significantly impacted by technology use. Residents managed the cases more quickly and accurately than students. Based on these results we suspect that prior knowledge guided learners' management.

**Table 1.** Mixed-methods ANOVA Results.

Dependent Variable	Level of Learner		Technology Use	
	Resident Teams (n = 14)	Student Teams (n = 33)	Used (n = 47)	Not Used (n = 47)
Percent of Critical Actions Completed	M = 69.4% SD = 12.3%	M = 48.9% SD = 18.9%	M = 64.5% SD = 28.4%	M = 44.1% SD = 24.2%
	$p < .001, \eta_p^2 = .245$		$p < .001, \eta_p^2 = .272$	
Percent of Critical Actions Completed (Pill identification items omitted)	M = 82.9% SD = 13.3%	M = 60.6% SD = 20.3%	M = 69.9% SD = 29.4%	M = 61.4% SD = 33.4%
	$p < .001, \eta_p^2 = .255$		$p = .283, \eta_p^2 = .026$	
Time to Completion (in seconds)	M = 1937.64 SD = 409.49	M = 2517.12 SD = 504.64	M = 1209.90 SD = 263.10	M = 1235.95 SD = 285.86
	$p < .001, \eta_p^2 = .576$		$p = .877, \eta_p^2 = .001$	

Note: All interaction effects between level of learner and technology use were not significant ( $p > .05$ )

**Table 2.** Percent of Critical Actions Completed Correctly.

Simulated Case	Critical Action	Used Technology (n = 47)	Did Not Use Technology (n = 47)	Fisher Exact Test p values
Isoniazid Overdose Case	Administer 1 <sup>st</sup> line medication	95.2%	80.8%	.204
	Administer 2 <sup>nd</sup> line medication	71.4%	72.0%	1.0
	Identify unlabeled pill	35%	0%	.002
Intracranial Hemorrhage Case	Administer pyridoxine	73.7%	64.0%	.534
	Medication to manage hypertension	80.8%	55.0%	.105
Identify unlabeled pill Case	Identify unlabeled pill	61.5%	0%	<.001
	Medication to reverse coagulopathy	48.0%	50.0%	1.0

## 22 Emergency Medicine Resident On Shift Clinical Teaching Efficacy as Measured by Student Evaluation and Self-Reflection Using a Previously Validated Metric

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**Background:** The Emergency Department (ED) is a rich and unique educational environment, though at times may be difficult to provide clinical teaching to students. It has been estimated that 33% of all student education comes from residents. While a formal teaching Milestone was dropped

from early drafts, the current ACGME Emergency Medicine (EM) project mentions teaching in 6 Milestones.

**Objectives:** The purpose of this study is to assess students' perceptions of and senior residents' self-assessments of EM resident's clinical teaching ability while on shift in the ED

**Methods:** This prospective study was conducted at a hospital with a 4 year dually approved EM residency and serves as a regional medical campus. Using a previously validated metric of EM attending teaching efficacy (Steiner et al, AEM 2000), students anonymously evaluated the teaching received from a senior (PGY 3 or 4) EM resident. The resident self-assessed their teaching using the same tool. Demographic information about both study groups was gathered, including prior knowledge of or training in clinical teaching models. Data was gathered using New Innovations<sup>®</sup> and analyzed using descriptive statistics. This study received support from an unrestricted research grant.

**Results:** Over 12 months, this IRB approved study enrolled 74 students, of whom 52.7% were female. Average age was 27.9 years. Students came from 25 discrete Medical and 6 PA schools. 48, or 64.9% were MS, all of whom were 4th years. The remaining 26 (35.1%) were PA. Prior knowledge of teaching models by students was limited. Fully 86.5% had no prior knowledge of either model (SNAPPS or 1 Minute Preceptor). Enrolled residents numbered 42, with 26.2% female. Average age was 32.0 years. Prior knowledge was noted by 38.1%. Prior training was most commonly 1-4 hours (31%), with 64.3% having anywhere from 1 to >4 hours. In total, the study had 517 on-shift teaching assessments. Figure 1 demonstrates the student responses, with Figure 2 denoting the resident self-assessments. Not Enough Time denotes a survey submitted without any responses.

**Conclusions:** In this single site study, student impressions of resident teaching were more favorable than resident self-assessments. There appears to be room for interventions to improve EM resident teaching of students.

**Figure 1.** Student Assessment of Resident Teaching Using the ER Scale.

	Didactic	Clinical	Approachable	Helpful
<b>Students Overall N (%)</b>				
Outstanding	180 (34.8)	196 (37.9)	275 (53.2)	297 (57.4)
Above Average	144 (27.8)	137 (26.5)	70 (13.5)	53 (10.3)
Average	32 (6.2)	25 (4.8)	13 (2.5)	9 (1.7)
Below Average	1 (0.2)	2 (0.4)	2 (0.4)	1 (0.2)
Unacceptable	0	0	0	0
Not Enough Time	34 (6.6)	34 (6.6)	34 (6.6)	34 (6.6)
Missing	126 (24.4)	123 (23.8)	123 (23.8)	123 (23.8)
<b>Med Students N (%)</b>				
Outstanding	113 (32.3)	126 (36.0)	196 (56.0)	192 (54.8)
Above Average	102 (29.1)	97 (27.7)	41 (11.7)	45 (12.9)
Average	28 (8.0)	22 (6.3)	8 (2.3)	9 (2.6)
Below Average	1 (0.3)	2 (0.6)	2 (0.6)	1 (0.3)
Unacceptable	0	0	0	0
Not Enough Time	19 (5.4)	19 (5.4)	19 (5.4)	19 (5.4)
Missing	87 (24.9)	84 (24.0)	84 (24.0)	84 (24.0)
<b>PA Students N (%)</b>				
Outstanding	67 (40.1)	70 (41.9)	79 (47.3)	105 (62.9)
Above Average	42 (25.2)	40 (24.0)	29 (17.4)	8 (4.8)
Average	4 (2.4)	3 (1.8)	5 (3.0)	0
Below Average	0	0	0	0
Unacceptable	0	0	0	0
Not Enough Time	15 (9.0)	15 (9.0)	15 (9.0)	15 (9.0)
Missing	39 (23.3)	39 (23.3)	39 (23.3)	39 (23.3)

**Figure 2.** Resident Self-Assessment of Their Teaching Using the ER Scale.

Residents Overall N (%)	Didactic	Clinical	Approachable	Helpful
Outstanding	25 (4.8)	25 (4.8)	48 (9.3)	24 (4.6)
Above Average	159 (30.8)	181 (35.0)	175 (33.8)	183 (35.4)
Average	147 (28.4)	125 (24.2)	112 (21.7)	126 (24.4)
Below Average	6 (1.2)	5 (1.0)	2 (0.4)	3 (0.6)
Unacceptable	0	0	0	0
Not Enough Time	129 (24.9)	129 (24.9)	129 (24.9)	129 (24.9)
Missing	51 (9.9)	52 (10.1)	51 (9.9)	52 (10.1)
<b>PGY3 N (%)</b>				
Outstanding	2 (1.0)	4 (2.0)	18 (8.9)	5 (2.5)
Above Average	65 (32.3)	82 (40.8)	88 (43.8)	87 (43.3)
Average	83 (41.3)	65 (32.3)	49 (24.4)	60 (29.8)
Below Average	5 (2.5)	4 (2.0)	0	3 (1.5)
Unacceptable	0	0	0	0
Not Enough Time	34 (16.9)	34 (16.9)	34 (16.9)	34 (16.9)
Missing	12 (6.0)	12 (6.0)	12 (6.0)	12 (6.0)
<b>PGY4 N (%)</b>				
Outstanding	23 (7.3)	21 (6.6)	30 (9.5)	19 (6.0)
Above Average	94 (29.8)	99 (31.3)	87 (27.5)	96 (30.3)
Average	64 (20.2)	60 (19.0)	63 (20.0)	66 (20.9)
Below Average	1 (0.3)	1 (0.3)	2 (0.6)	0
Unacceptable	0	0	0	0
Not Enough Time	95 (30.1)	95 (30.1)	95 (30.1)	95 (30.1)
Missing	39 (12.3)	40 (12.7)	39 (12.3)	40 (12.7)

## 23 Emergency Medicine Trainees with High Emotional Exhaustion Are Associated with Lower Patient Satisfaction Scores

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**Background:** Burnout is a syndrome of emotional exhaustion, depersonalization and sense of low personal accomplishment. Emergency medicine (EM) physicians experience the highest levels of burnout among all specialties. Physician burnout is associated with lower quality of patient care. It is unknown if EM trainee burnout is also associated with poorer quality of care.

**Objectives:** We examined the relationship between EM trainee burnout and resident-specific Press Ganey patient satisfaction (PS) scores. We hypothesized that burnout would be associated with lower PS scores.

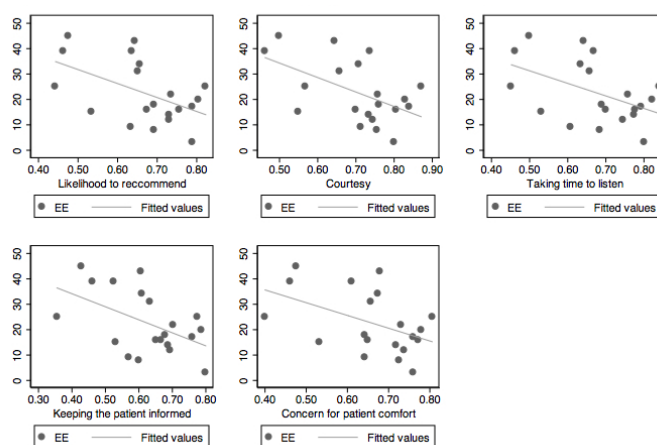
**Methods:** In this cross-sectional survey study conducted in October 2015 we assessed burnout in all post-graduate year 1-4 EM trainees at a single academic program using the Maslach Burnout Inventory. Resident-specific PS measures included: (1) likelihood to recommend; (2) courtesy; (3) taking the time to listen; (4) keeping the patient informed; and (5) concern for patient comfort. In our primary analysis overall burnout was dichotomized by high depersonalization or emotional exhaustion subscale scores and compared to PS scores using an independent samples t-test. In our secondary analyses each burnout subscale was treated as a continuous variable and compared to PS scores via linear regression.

**Results:** Thirty-six out of 54 (66.7%) eligible trainees responded to the survey and 27 (75.0%) reported burnout. Excluding trainees lacking PS data, mean PS scores for the remaining 20 participants were: (1) 66.8 (SD  $\hat{A}\pm 11.3$ ); (2) 70.8 ( $\hat{A}\pm 11.3$ ); (3) 67.6 ( $\hat{A}\pm 11.8$ ); (4) 62.7 ( $\hat{A}\pm 12.0$ ); and

(5) 66.2 ( $\hat{A}\pm 11.5$ ). In our primary analysis there were no significant associations between overall burnout and PS scores. In our secondary analyses, however, high emotional exhaustion scores were negatively associated with all PS scores: (1) 95% CI (-0.86, -0.08), p=0.02; (2) CI (-0.88, -0.10), p=0.02; (3) CI (-0.88, -0.04), p=0.03; (4) CI (-0.92, -0.08), p=0.02; and (5) CI (-0.85, -0.02), p=0.04. There were no significant associations between the depersonalization and personal accomplishment subscales with PS scores.

**Conclusions:** EM trainees' emotional exhaustion scores were negatively associated with all PS scores. We did not find associations between overall burnout with PS scores, but these results may have been limited by the study's small sample size.

**Figure 1.** Emotional Exhaustion (EE) vs Press-Ganey Patient Satisfaction.



## 24 Emergency Physician Presence At Two Large Outdoor Music Festivals

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**Background:** Music festivals are a form of mass gatherings that require unique preparation and resource allocation. These events have recently gained increased attention due to an alarming number of hospitalizations and deaths, most notably at electronic dance music festivals (EDMFs). Crowd mood is a term shown to vary with music genre and correlates with the patient presentation rate (PPR). Currently, consistent, evidenced-based recommendations regarding optimal medical staffing and resource allocation currently do not exist.

**Objectives:** To describe medical utilization at two large, outdoor, summertime, urban music festivals with disparate crowd moods to improve future mass gathering medical preparedness.

**Methods:** This was a prospective, observational study enrolling consecutive patients who presented for medical