Background: In 2003 Ginde et al. found that 35% of emergency medicine (EM) residencies lack formal electrocardiogram (EKG) curricula and 48% of EM residency directors supported the creation of a national EKG curriculum. No formal national curriculum currently exists, and it is unknown whether residents gain sufficient skill from clinical exposure alone. In 2016 Hartman et al. found only 28% of PGY-1s and 54% of PGY-3/4s passed a validated test of critical EKG interpretation.

Educational Objectives: We sought to evaluate leader and learner perception of learner EKG interpretation skills at the start of EM residency and to assess the value of our flipped-classroom, critical EKG curriculum. Our curriculum provides 1) exposure to critical EKG pattern; 2) a framework for EKG interpretation when gestalt is not sufficient; and 3) implementation guidelines and open-access to any interested residency. Additionally, in response to prior feedback,we sought to create separate curricula, EKG I and II, benchmarked to PGY-1 and PGY-2 level learners respectively.

Curricular Design: The Foundations of Emergency Medicine (FoEM) EKG I and EKG II curricula were launched in 2017. Topics included 15 published critical EKG diagnoses and 33 selected by consensus. Cases include a brief history, EKG(s), a standard interpretation stem, and Free Open Access Medical Education links. Full EKG interpretations and answers to discussion questions were provided to facilitators.

Impact/Effectiveness: EKG I enrollment for the 2017-2018 academic year included 39 residencies and 671 learners, an increase from six residencies and 76 learners in 2016-2017. EKG II enrollment included 24 residencies and 446 learners. In March 2018, program leaders and learners were surveyed, with 74 of 77 sites responding (96%). Leaders were highly satisfied and indicated that content was at an appropriate level for learners. Learners were also highly satisfied and indicated that the curricula improved their ability to interpret EKGs in clinical settings. Only 28% of learners agreed or strongly agreed that "at the beginning of residency, I was prepared to interpret EKGs." Also, only 14% of leaders agreed or strongly agreed that "at the beginning of residency, compared to their classmates, interns are equally prepared to interpret EKGs." These preliminary data suggest that an unmet need for standardization and improvement of EKG training exists.

Table 1. Foundations EKG I and EKG II course overview (www.foundationsem.com)

Unit I Summary	Approach to Ischemia: STEMIs	Unit VII Summary	Approach to fascicular blocks
1	Anterior/Lateral STEMI	25	Left and right bundle branch blocks
2	Inferior STEMI	26	Left anterior fascicular block
3	Posterior STEMI	27	Left posterior fascicular block
4	STEMI w LBBB/Pacer (Sgarbossa)	28	Bifascicular/"Tri"-fascicular blocks
Unit II Summary	**Approach to Ischemia: Ischemia mimics**	**Unit VIII Summary**	**Approach to Ischemia: NSTEMIs**
5	Benign early repolarization	29	Diffuse STD w aVR elevation
6	LV aneurysm	30	High lateral MI
7	Hyperkalemia	31	DeWinter ST/T complex
8	Pericarditis	32	RV infarct
Unit III Summary	**Approach to Syncope**	**Unit IX Summary**	**Miscellaneous Ischemic EKGs**
9	Brugada	33	PE and acute right heart strain
10	Long QT	34	Cerebral T-waves
11	WPW	35	Wellen's waves
12	HOCM	36	New RBBB & LAFB
Unit IV Summary	**Approach to Bradyarrhythmias**	**Unit X Summary**	**Potassium Derangement**
13	2nd degree AV block type I	37	Hypokalemia
14	2nd degree AV block type II	38	Mild/Moderate hyperkalemia
15	3rd degree AV block	39	Severe hyperkalemia (sine wave)
16	Junctional/Ventricular escape rhythm	40	Bizarre, wide complex bradycardia
Unit V Summary	**Approach to Tachyarrhythmias: Narrow Complex**	**Unit XI Summary**	**Miscellaneous EKGs**
17	SVT	41	SVT w aberrancy/antidromic AVRT
18	Atrial fibrillation with RVR	42	Arrhythmogenic right ventricular cardiomyopathy
19	Atrial flutter with RVR	43	EKG findings in Digoxin toxicity
20	Multifocal atrial tachycardia	44	Accelerated idioventricular rhythm
Unit VI Summary	**Approach to Tachyarrhythmias: Wide Complex**	**Unit XII Summary**	**Approach to Paced Rhythms**
21	VT	45	Normal AV paced rhythm
22	WPW with Atrial Fibrillation	46	Normal V paced rhythm
23	Hyperkalemia	47	Pacemaker Mediated Tachycardia
24	Sodium channel blockade	48	Failure to capture

39 3D Printed, Do-It-Yourself Ultrasound-Guided Femoral Nerve Block Task Trainer

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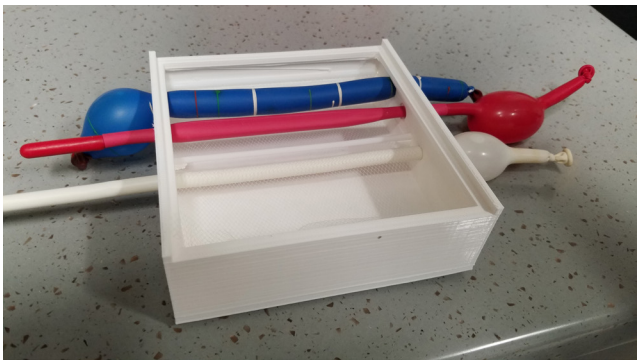
Background: Emergency physicians are required to be well versed in a wide repertoire of procedures ranging from life-saving resuscitative techniques to pain control and management. Pain management has conventionally been approached via pharmacological means; however, a relatively newer approach involves the use of peripheral nerve blocks. Specifically, for

patients with lower extremity and hip fractures, a femoral nerve block can be used. An economical device capable of demonstrating anatomic landmarks on ultrasound (US) is needed to make practice more accessible and ultimately lead to improved training and patient care.

Educational Objectives: This innovation was designed to meet the following educational objectives: 1) Identify anatomical features for femoral nerve block using US; 2) develop tactile and spacial skills for real-time US-guided femoral nerve block; and 3) design a training device that is inexpensive, provides realistic imaging representation, and can be replicated across multiple training programs.

Curricular Design: The femoral nerve block task trainer is composed of a 3D printed case with specific openings on its sides coinciding with anatomically correct femoral artery, nerve and vein dimensions. The interior of the case is filled with a superabsorbent polymer that will absorb water and give it a consistency comparable to subcutaneous tissue. A rubber "skin" placed over the trainer contains components and maintains an US interface. Thirty-six EM residents provided feedback on the task trainer after participating in a deliberate practice exercise.

Impact/Effectiveness: Using this low-cost, effective trainer allows for easier access to repeated practice as well as providing a safe method without the need for practicing on a human patient. Of the residents surveyed, 97% stated that this model was realistic, and 96% believed that the training activity using this model will help provide improved patient care.



40 Transparency in the Culture of Assessment and Feedback: A Currently Opaque Environment and the Case for Resident Feedback Dashboards

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Background: Proper feedback practice should encourage the development of self-reflection, encourage dialogue between teacher and learner, and provide a framework to move toward desired performance. It should be ongoing, frequent and dynamic (Swanwick, Tim. *Understanding Medical Education*). Unfortunately, satisfaction with feedback among emergency medicine residents is lower than it should be. Resident dashboards have been described as platforms that inform the clinical competency committees (CCC) in internal medicine. Resident dashboards allow residents to access their feedback data on a real-time basis.

Educational Objectives: The resident dashboard was designed to create a more transparent environment regarding performance. A dashboard enables residents to regularly reflect upon their feedback in an easy-to-understand visual format that identifies their strengths and weaknesses within the framework of the ACGME Milestones. This immediate, timely feedback allows residents to refine their clinical practice on an ongoing basis. Over time, the accumulation of data will make it feasible to create individually tailored education plans.

Curricular Design: After performing an internal needs assessment, we realized there was a need to change how evaluations of resident clinical performance were collected and communicated. Responses highlighted a need for increased quantity, specificity and transparency. We created a new evaluation tool that focused on obtaining Milestone-relevant clinical data coupled with focused qualitative questions. Rather than using a ranked scale to assess individual competencies within the Milestones

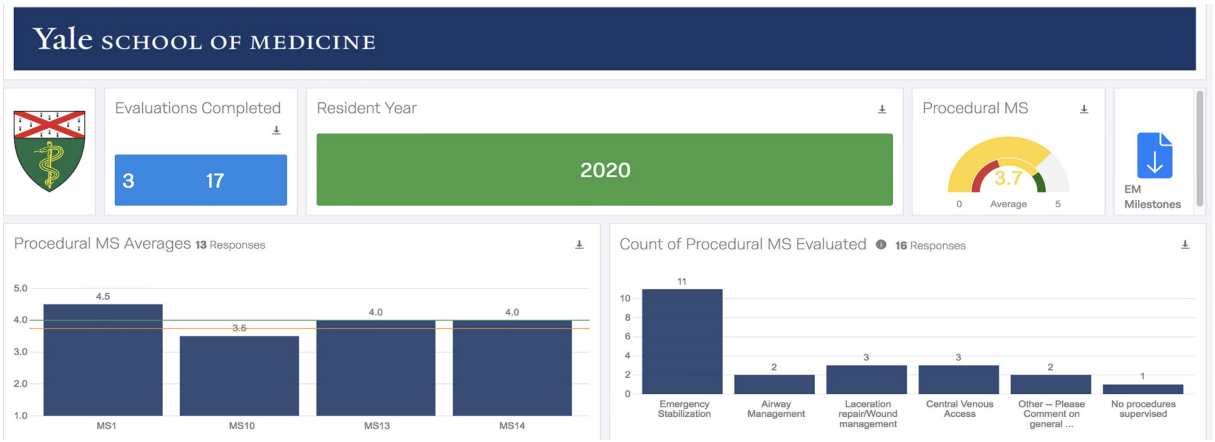

Figure for Abstract #40.