47 STEMI or Not STEMI: EKG Assessment and Screening Responsibilities Among Emergency Medicine Residency Programs

Burns B, Weygandt P, Hartman N, Grabow Moore K / University of Wisconsin Madison; Johns Hopkins University; Wake Forest School of Medicine; Emory University School of Medicine

Background: Rapid triage of electrocardiograms (EKG) for patients presenting with possible life threats is an integral skill to the practice of EM. Resident training in EKG interpretation is variable and no standardized measure of competence exists. It is unclear what autonomy EM residents are afforded in screening EKGs. Regardless of their residency experience, it is likely they will assume this role when they enter independent practice.

Objective: Assessment of current practices in formal assessment of resident EKG proficiency, EKG screening by residents in the ED, and self-reported resident confidence in screening life threats among EM residencies participating in Foundations of Emergency Medicine (FoEM), an open-access EM curriculum.

Methods: In June 2019, all registered FoEM site leaders and learners were asked to complete a web-based survey consisting of Likert scale and multiple choice items. Sites who reported nonuse or pilot-only use of FoEM content and those who registered after December 2018 were excluded. Survey items were piloted by the FoEM leadership team prior to survey administration. Descriptive statistics were reported.

Results: For the 2018-2019 year, 130 US and 5 international EM residency programs registered for FoEM. 105 programs were eligible to participate in this study. 99 (94%) site leaders and 1628 (54%) learners completed the surveys. Only a minority of leaders reported that their residents receive a formal assessment of EKG interpretation skill and a majority reported that their resident screened triage EKGs either with or without direct supervision (Table 1). Additionally, a significant minority of leaders reported that residents do not screen EKGs for life threats. The overwhelming majority of residents agreed or strongly agreed that they feel confident independently reviewing EKGs for life threats (Table 2).

Conclusions: Significant variability exists in the use of formal EKG assessment and resident EKG screening autonomy among participating residencies.

Table 1.

Leader Survey Responses			
Do your residents receive a formal assessment of their skills in interpreting EKGs?			
Yes	23.5% (n = 24)		
No	76.5% (n = 78)		
Do your residents screen EKGs for life threats? Life threats include STEMI, signs of ischemia, dangerous tachy/brady dysrhythmias, electrolyte disturbances, etc. Direct supervision means that residents either evaluate EKGs for life threats with attendings or immediately provide the EKGs to attendings for over-read.			
Yes - Without Direct Supervision	17.7% (n = 18)		
Yes - With Direct Supervision	59.8% (n = 61)		
No	22.5% (n = 23)		
	Formal Assessment	No Formal Assessment	
EKG Screen Without Direct Supervision	25.0% (n =6)	15% (n = 12)	
EKG Screen With Direct Supervision	54.2% (n =13)	62% (n = 48)	
No EKG Screen	20.8% (n =5)	23% (n = 18)	
Chi^2 = 1.16 Pr=0.557			

Table 2.

Resident Survey Responses					
I feel confident in my ability to independently review EKGs for life threats. Life threats include STEMI, signs of ischemia, dangerous tachy/brady dysrhythmias, electrolyte disturbances, etc.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
PGY1 (n = 608)	18.8%	63.2%	12.2%	5.1%	0.8%
PGY2 (n = 550)	30.2%	56.9%	10.0%	2.6%	0.4%
PGY3 (n = 385)	44.4%	49.9%	4.7%	0.8%	0.3%
PGY4 (n = 78)	53.9%	43.6%	2.6%	0.0%	0.0%
All Residents (n = 1,631)	30.4%	56.9%	9.3%	2.9%	0.5%
I feel confident in my ability to independently review EKGs for life threats.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All Residents at sites with formal assessment (n = 297)	30.6%	54.8%	9.8%	4.3%	0.3%
All Residents at sites without formal assessment (n = 1334)	30.3%	57.3%	9.2%	2.6%	0.5%
Chi^2 = 3.06, Pr = 0.548					