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Needs Assessment for a Peer Support Network in an Emergency Medicine Residency Program

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28 Investigation of ECG Interpretation Errors By Senior Emergency Medicine Residents

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Background: In our Emergency Department (ED), senior third-year emergency medicine residents (EM3) are the initial interpreters of all ED ECGs, which provides both increased exposure and practice in interpreting ECGs. While this is an integral part of emergency medicine (EM) resident education, the accuracy of ECG interpretations is unknown. Additionally, to our knowledge, there are no published studies investigating error rates of ECG reading by EM3s.

Objectives: The goal of this study was to analyze the error rate associated with senior EM resident ECG interpretations.

Methods: Retrospective study of all ED ECGs read by EM3s between 10/13/15-9/14/16 at an urban, tertiary care, academic medical center with a three-year residency that treats 56,000 patients per year. We reviewed all cases referred to the ED Quality Assurance (QA) Committee during this time period. Referred ED cases were evaluated by an 8-point Likert scale assessing for error, preventable and non-preventable adverse events. Cases perceived to have an error or the potential for patient harm were referred to a 20-member committee of ED leadership, attendings, residents and nurses for further consensus review. 95% confidence intervals (CI) were calculated.

Results: 27,034 ECGs were read by EM3s between 10/13/15-9/14/16. Of the 920 ED QA cases reviewed during this time period, an error was identified in 103 cases (11.2%; CI 9.2-13.2%). Three of the 103 errors involved a resident ECG interpretation or failure to act on an ECG abnormality (2.9%; CI 0-6.14%).

One case involved a senior resident who did not recognize evolving ECG changes during an ED visit, while another error resulted when a senior EM resident did not request an immediate evaluation of a patient in triage with an ECG that demonstrated sinus tachycardia at 140 bpm. The only case that had an adverse outcome involved a missed posterior ST-segment elevation myocardial infarction (STEMI).

Conclusions: There appears to be a low error rate associated with ECG interpretation among the EM3s at this single academic tertiary care facility. We believe this supports the continued use of senior EM residents as the initial interpreter of ED ECGs.

29 Needs Assessment for a Peer Support Network in an Emergency Medicine Residency Program

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Background: The most well-established model of mentorship in residency programs involves a faculty-resident relationship. Existing concerns with this model include resident discomfort discussing personal issues with faculty members and the inherent difficulties that arise when a faculty advisor is also assessing resident performance.

Objectives: To perform a targeted needs assessment for the development of a peer support network to supplement existing faculty mentorship at the LAC+USC Emergency Medicine (EM) residency program. We hypothesize that residents would perceive a peer support network to better address topics related to personal issues and wellness compared to faculty mentorship.

Methods: This cross-sectional study was conducted using an anonymous survey sent to all 68 EM residents. Survey questions gathered demographic information and degree of social isolation. Respondents then evaluated faculty mentorship on its ability to address specific personal and academic issues, and predicted how well these issues would be addressed by a peer support network of assigned teams of residents.

Results: Fifty-seven of 68 (84%) residents completed the survey. Despite 81% of respondents reporting family, friends, or support networks nearby, 60% felt isolated either "some of the time" or "often", and 35% struggled with mental health, substance abuse, or relationship issues during residency. Additionally, less than 12% of residents were willing to turn to a program director or faculty mentor for assistance with these issues. The majority of residents (86%) felt that problems with personal relationships would be well-addressed by a peer support network, while only 46% of residents felt these issues were well-addressed by the faculty mentor. Similar trends between the two mentorship models were seen with regards to substance abuse (74% vs 53%), imposter syndrome (93% vs 49%) and isolation from the residency community (91% vs 54%).

Conclusions: Many residents experience some degree of social isolation or personal hardship during residency and prefer not to approach the residency office or faculty mentors for support. Though there are limitations in comparing established and theoretical mentorship models, this needs assessment suggests a role for a future peer support network to improve resident wellness and discuss issues not well-addressed by current mentorship.
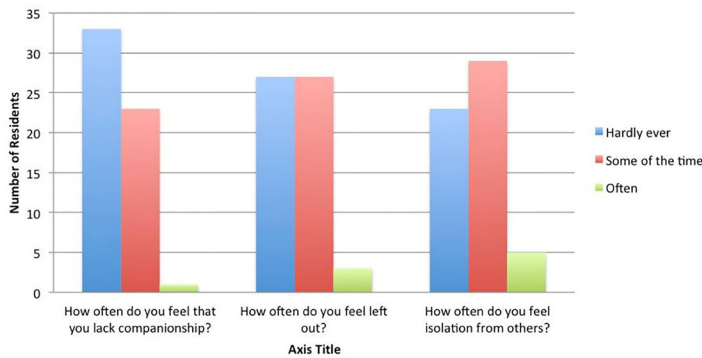
Figure 1. Social Isolation.
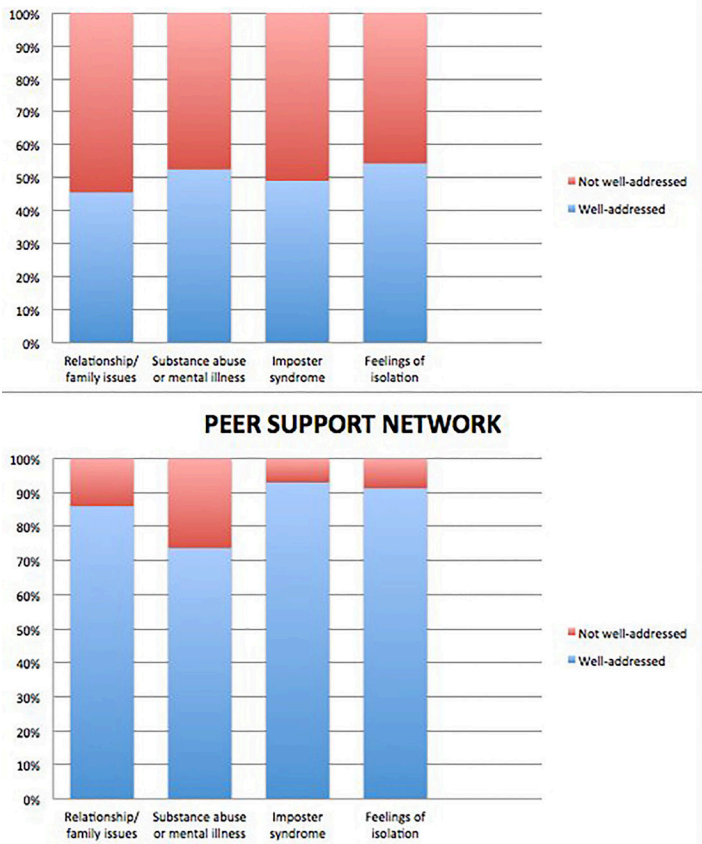

PEER SUPPORT NETWORK

Figure 2. Comparison of Mentorship.

30 Non-Emergency Medicine Residents: Creating an Efficient Workforce

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Background: Non-Emergency Medicine (EM) residents make up to one fourth of the resident workforce. While educational objectives vary by specialty and differ from traditional EM objectives, assessing and improving efficiency remains constant. Current literature has established a correlation between a trainee's specialty and its relation to primary care leading to clinical success during an EM rotation, but does not discuss how this relates to efficiency.

Objectives: We aim to assess productivity of non-EM residents from various specialties and to develop a model that describes efficiency, defined as patients seen per hour (pts/hr), weighted by month of training.

Methods: We performed a retrospective review of non-EM resident patient logs from July 2014 to June 2016. Current training month and the average patients seen per hour were extracted. Rotating residents, who hail from Anesthesia (Anes), Internal Medicine (IM), Medicine/ Pediatrics (M/P), Obstetrics/Gynecology (Ob/Gyn), Physical Medicine and Rehabilitation (PMR), Transitional Year (TY), spent one month rotating within our suburban Emergency Department (ED) whose annual patient volume exceeds 120,000. For each resident, the mean number of patients per hour and standard deviation (SD) was calculated. Linear regression was used to develop a model that describes expected efficiency for a non-EM resident per month of training.

Results: We analyzed data from 110 non-EM residents over 24 months. We found the average pts/hr was similar amongst specialties, except for IM PGY2, whose average pts/hr was higher (Table 1). An inexperienced non-EM resident sees 0.873 pts/hr. In addition, non-EM resident efficiency increases quarterly (Table 2) and they are able to see an additional 0.012 pts/hr based on their current month of training. Linear regression was used to develop a model to describe predicted efficiency for a non-EM resident. The model predicts that pts/hr = 0.873 + (0.012 x training month) $(F(1, 108)=59.10, p=0.00, R^2$ of 0.35).

Conclusions: An efficiency prediction model allows for individual goals and expectations to be set for ED staffing and non-EM resident workflow. Residents rotating in the ED later in training are more productive. This model may assist strategic placement of the EM rotation in a non-EM resident's curriculum.

Table 1. Mean patients per hour by specialty.

Specialty	PGY	n	Pts/Hr	SD
Anes	1	10	0.913	0.152
IM	1	14	1.024	0.074
IM**	2	26	1.102	0.083
M/P	1	6	0.963	0.149
M/P	2	5	1.049	0.088
Ob/Gyn	1	12	0.999	0.081
PMR	1	6	0.948	0.148
TY	1	31	0.935	0.105

** Statistically different than Anes, PM&R, and TY