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Prevalence of Secondary Traumatic Stress and Burnout Among Emergency Medicine Residents: A Cross-Sectional Needs Assessment to Guide Wellness Interventions

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and post-intervention surveys with 5-point Likert scale items evaluating block-specific procedural self-efficacy, including sonoanatomy identification and ultrasound-guided in-plane needle visualization. Responses were dichotomized as not confident (0–3) or confident (4–5). Paired pre- and post-intervention responses were compared using McNemar's test.

Results: Paired pre- and post-intervention surveys were analyzed. Confidence in block-specific procedural skills demonstrated the greatest improvement. The proportion of trainees reporting confidence in identifying relevant sonoanatomy (fascia iliaca, iliopsoas, and femoral nerve) increased from 5% pre-intervention to 95% post-intervention ($p < .001$). Confidence in ultrasound needle tip identification and in-plane needle guidance similarly increased from ≤20% pre-intervention to 95% post-intervention (all $p < .001$).

Conclusion: A low-cost ballistic gel phantom paired with a brief, structured curriculum significantly improved emergency medicine resident and fellow self-efficacy in key procedural components of ultrasound-guided fascia iliaca block. This scalable simulation approach may facilitate earlier and safer adoption of regional anesthesia techniques in emergency medicine training.

20 Prevalence of Secondary Traumatic Stress and Burnout Among Emergency Medicine Residents: A Cross-Sectional Needs Assessment to Guide Wellness Interventions

Caroline Vance, MD, William Mundo, MD, MPH, Genie Roosevelt, MD, MPH, Kelley Roswell, MD

Background: Emergency medicine (EM) residents are exposed to traumatic events resulting in secondary traumatic stress (STS) and burnout, potentially undermining resident wellbeing, team performance, and long-term workforce sustainability. Programs often lack local data to tailor effective support structures.

Methods: A cross-sectional needs assessment survey was administered to one county EM residency which included exposures to potentially traumatic events (PTEs), the Secondary Traumatic Stress Scale (STSS), and the abbreviated Maslach Burnout Inventory (MBI). The MBI has three components: emotional exhaustion and depersonalization (higher scores associated with higher burnout), and personal achievement (higher scores associated with lower burnout).

Results: 43/68 residents (63%) completed the survey. MBI data suggested emotional exhaustion (mean 13.7±4.8) was greater than depersonalization (mean 10.1±4.0), but residents scored highest on personal achievement (mean 15±3.9). The total mean STSS was 45±12 (high STSS category). 43/43 (100%) of residents reported receiving training in resiliency, grief, or stress reduction. 16/40 (40%) stated the residency has adequate support systems in place. 35/39 (90%) reported at least one PTE during residency. The most frequent PTE exposures were systemic failures (100%), patient suffering and death (97%), violent patients (95%), and witnessing traumatic injuries (93%). The most common symptoms reported after PTEs were poor sleep (77%), decreased mood (70%), and anxiety (67%). Residents identified the following coping strategies as very effective or effective after PTEs: talking to a colleague (98%), spending time with loved ones (95%), exercise (85%), team debrief (70%), and talking to a mentor (70%). Residents stated they were very likely or likely to utilize the following resources for PTEs: debriefing (83%), mental health professionals (58%), and mobile health applications (53%). 31/40 (78%) stated they would be or may be interested in piloting a longitudinal incident support tool.

Conclusion: PTEs, traumatic stress, and burnout are common in EM residency but residents maintain a sense of personal achievement. Coping strategies outside the hospital are commonly used and debriefing appears to be both effective and likely to be utilized. Residents are receptive to trialing an incident support tool.

21 Artificial Intelligence-Powered Electrocardiogram Interpretation Identifies STEMI Earlier than Physicians

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Background: Rapid identification of ST segment elevation myocardial infarction (STEMI) and STEMI equivalent patterns on electrocardiogram (ECG) is critical to reducing patient mortality and achieving guideline-recommended metrics. Our goal in this study was to determine whether an artificial intelligence (AI) system for ECG interpretation can identify STEMI and equivalent patterns on ECG in emergency department (ED) patients more rapidly than physicians.

Methods: We performed a retrospective, observational study of patients from 1/1/20 to 12/31/23 at a single academic medical center who were found to have acute coronary occlusion on emergent coronary angiography and who had at least one ECG tracing prior to the start of coronary angiography that was diagnosed by Queen of HeartsTM AI-ECG model as STEMI/equivalent. The outcome was difference in diagnostic ECG time. Physician diagnosis was defined as the time of last ECG prior to cardiac catheterization lab (CCL) activation. If no ECG prior to CCL was available, the CCL activation time was used as the diagnosis time. The AI-ECG diagnosis time was defined as the time of the first ECG interpreted by the system as positive for acute coronary occlusion. If no ECG prior to CCL activation was available and the AI-ECG model interpreted the first available ECG as positive for acute coronary occlusion, the CCL activation time