

Clinician burnout and its association with team based care in the Emergency Department



To the Editor:

Recent work has noted the alarming prevalence of clinician burnout among providers, particularly among acute care physicians [1]. *Burnout* is characterized by emotional exhaustion, physical fatigue, and cognitive weariness, which may lead to feelings of depersonalization and reduced accomplishment [2]. The consequences of burnout are broad and has been shown to adversely influence both clinician well-being and patient care outcomes [3,4]. An emerging body of literature has found that aspects of the acute care environment may play a role in moderating the effects of burnout among emergency providers. Factors such as Emergency Department (ED) crowding, hallway care, and patient volume has been associated with increased perceived psychological distress and perceived communication quality among patients and providers in the ED setting [5–7]. One aspect of the ED environment which may also influence the development of burnout may be the team structure and staff environment in which clinicians operate. The ED is a fast-paced setting, where teamwork is critical to efficient care. While coordinated team based models (e.g. physician, nurse and ancillary staff paired together) have been associated with improvements in specific disease processes such as trauma and cardiac arrest, [8] less is known regarding such team models on clinician based psychological outcomes such as clinician burnout. Past work has found that team structure and workplace culture may play a role in the development of burnout in health-care settings, [9] though this work has not previously been explored in the acute care setting. The goal of our study was to evaluate if a novel ED team based structure would be associated with decreased levels of clinician burnout.

We performed a 6 month prospective observational study of 64 emergency clinicians and nurses in an urban academic medical center ED. 30 of the providers worked in a team based model composed of a daily staffing assignment whereby physicians, nurses, and technicians would be paired as a group and evaluate a broad range of patients during their ED shift together as a coordinated unit. 34 of the providers worked in a staffing model in which no clustered teams were assigned (e.g. physicians, nurses and technicians were assigned to patients independent of the other providers). Participants completed a series of demographic forms, along with the Maslach Burnout Inventory, a validated self-report instrument assessing burnout at the end of 6 month period [2]. Outcome of interest was clinician burnout scores as measured by the Emotional Exhaustion sub-scale of the Maslach Burnout Inventory.

Both the paired team based group and standard team models did not differ significantly with regards to age (paired team 48.22 ± 5.1 vs. standard team 51.42 ± 4.8 , $p = .31$), sex (paired team 48% male vs. 51% male in standard team, $X^2 = 0.15$ $p = .77$), and years of clinical experience (paired team 9.3 ± 4.1 vs. standard team 8.2 ± 3.8 , $p = .44$). A two-sided two sample *t*-test found that clinicians in the paired team based group had significantly lower Emotional Exhaustion sub-scales on the Maslach Burnout Inventory (10.3 ± 2.4) compared to standard team model clinicians (12.3 ± 3.5 ; $t = 2.63$, $p < .02$).

Team based models have been associated with improved clinician and patient satisfaction in specific domains of emergency care. Previous work has described its benefits with regards to patient outcomes but less work has explored this among clinician outcomes, particularly burnout, in the ED setting. In our study, we

found that ED clinicians working in a staffing model composed of paired teams, had significantly lower self-reported burnout scores compared to those working in standard team models.

Our findings support the important role that environmental factors in the acute care setting may have with regards to the development of burnout. While burnout risk is likely the constellation of both state, trait, and environmental factors, [10] our data highlight the presence of potentially modifiable factors in the ED setting that could contribute to burnout risk and suggest future targets of interventions for both administrators and researchers.

The study was limited by being a single hospital system study, potentially limiting the generalizability of our findings. Additionally, our outcomes were assessed using self-report measures. Future work using objective third party methods or mixed-methods including qualitative interviews, may elucidate optimal care models from both the clinician and patient perspective. Additionally, burnout was assessed at a single time point, in a naturalistic observational setting thus potential pre-existing differences in burnout among providers may not have been adequately accounted for. Future research exploring potential interventions at the team level may use a priori randomization strategies to better elucidate any potential causal mechanisms of such interventions with burnout.

Our study describes data on the association of clinician burnout in a team based care model for ED providers. Additional work exploring the critical dynamics between clinicians and their patients may help lead to innovative and dynamic care models focused on improving patient outcomes and clinician career satisfaction.

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Meetings

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Changing U.S. guidelines on lidocaine for stable monomorphic ventricular tachycardia: Have emergency medical services kept pace?



Dear Editor,

U.S. guidelines for the treatment of stable monomorphic wide-complex tachycardia (WCT)/ventricular tachycardia (VT) have evolved over the years to reflect accumulating evidence. Dynamic recommendations for lidocaine are illustrative. In the 1985 Standards and Guidelines for Emergency Cardiac Care, the consensus of multidisciplinary experts stated: “In hemodynamically stable patients with ventricular tachycardia, the first approach is antiarrhythmic therapy such as lidocaine” [1]. In the ensuing 20 years, the indication for lidocaine for stable monomorphic VT was limited and the recommendation weakened. The 2006 Advanced Cardiac Life Support guidelines suggested that lidocaine “might be reasonable for the initial treatment of patients with stable sustained monomorphic VT specifically associated with acute myocardial ischemia or infarction” (Class IIb; Level of Evidence C) [2]. The 2010 update additionally downgraded lidocaine on the list of recommendations because lidocaine “is less effective in terminating VT than procainamide, sotalol, and amiodarone...” [3]. The revision of 2015 carried forward the 2010 recommendation without change. The 2017 guideline, however, further demoted lidocaine by removing it altogether from the recommendations [4].

Guidelines are written to summarize the evidence in a concise, accessible way for straightforward translation into clinical practice. The extent to which U.S. guidelines have affected patient care in the pre-hospital setting is only beginning to be explored [5]. To help address this gap in knowledge, we undertook a descriptive study of two temporally-separated cross-sectional surveys of emergency medicine services (EMS) dysrhythmia protocols across the U.S. This allowed us to evaluate the prevalence of lidocaine as a recommended agent in the treatment of stable monomorphic WCT/VT when two different U.S. guidelines (2010/2015 and 2017) were in effect.

Table 1

Temporal change in EMS protocols in the use of lidocaine in the treatment of stable monomorphic wide-complex or ventricular tachycardia

Lidocaine recommendation	Date of cross-sectional survey	
	April 2017	January 2019
Recommendation from the then-current American Heart Association Guideline	Lidocaine “is less effective in terminating VT than procainamide, sotalol, and amiodarone...”.	Lidocaine was not mentioned as a recommended treatment.
EMS Protocols (n = 62)		
First-line intervention, n (%) [n states]	9 (15) [3 states]	15 (24) [5 states]
Exclusive recommendation	7 (11) [2 states]	6 (10) [2 states]
One of several alternative recommendations	2 (3) [1 state]	9 (15) [5 states]

EMS = Emergency medicine services.

We selected EMS protocols from 16 states, four from each of the four U.S. Census regions, based on protocol availability from www.emsprotocols.org. We used statewide protocols when available (n = 11); otherwise, we used protocols from all jurisdictions within the state (n = 3 with 51 total protocols). We identified the first-line recommendation of adenosine, but do not include it in our reporting of VT-directed interventions. We distinguish exclusive recommendations (e.g., “Consider lidocaine”) from one of several alternative recommendations (e.g., “Consider lidocaine or amiodarone”). The relevant protocols were reviewed independently by three investigators to increase accuracy. Differences of interpretation were arbitrated by consensus.

We report the results of our two surveys in [Table 1](#). Sixty-one protocols (98%) underwent revision between the two surveys. Recommendations of lidocaine as a first-line agent were prevalent in both 2017 and 2019, increasing over time (13% and 24%, respectively). The EMS protocols recommending lidocaine in early 2019 included 5 states (31%), representing all 4 U.S. Census regions. We had hypothesized that the prevalence of lidocaine recommendations would decrease following the publication of the 2017 U.S. guideline, but this was disconfirmed by our results. Our findings are tempered by the limited number of included states (16 of 50). Nevertheless, they expose the disconnect between U.S. society guidelines on the treatment of stable monomorphic VT and some EMS protocols, which govern on-the-ground patient care. Further research should explore the reasons for this divergence.

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Declaration of Competing Interest

None.

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