



Published in final edited form as:

*J Emerg Med.* 2018 January ; 54(1): e19–e21. doi:10.1016/j.jemermed.2017.08.092.

## The unique environmental influences of acute care settings on patient and physician well-being: A call to action

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Half of the nearly 900,000 practicing physicians in the United States report symptoms of burnout, and clinicians working in acute care environments such as emergency departments (EDs) and intensive care units (ICUs) appear at greatest risk.(1) *Burnout*, defined by emotional exhaustion, physical fatigue and cognitive weariness (2), results from high and sustained levels of stress and is associated with irritability, fatigue, and cynicism.(2) In a sample of physicians across specialties adjusted for age, sex, relationship status, and years of practice, physicians practicing in acute care settings were at greatest risk for burnout with nearly 70% reporting burnout compared to a mean of less than 50% across specialties.(1) Similarly, a systematic review of 17 studies found high rates of burnout among ED nurses. (3) Although burnout is most common in midcareer clinicians, it can emerge early, with 53% of second-year ED residents reporting burnout.(4) Burnout may impact not only physician well-being and career longevity but also the quality of care they provide to a vulnerable and ill patient population. These phenomena could feed a health care workforce crisis and it is critical to explore driving factors.

A diverse range of modifiable contributors to clinician burnout have been postulated – ranging from increased burden of non-clinical work to work-life integration – with emerging evidence suggesting that the acute care clinical milieu may also play a significant role.

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Specifically, the crowding and work-flow congestion that have become mainstays of acute care may be core drivers of physician burnout, and may help explain why clinician burnout is most prevalent in acute care settings.

Indeed, the healthcare landscape has undergone drastic changes over the last decade. Factors such as population aging and poor access to primary care have stretched hospital capacity. The consequences of those pressures are reflected in increased crowding and work-flow congestion in acute care settings such as ICUs and EDs. The Institute of Medicine declared that EDs were nearing the “breaking point” a decade ago, and the situation has since deteriorated.(5) A deeper understanding of the relationship between the acute care environment and clinician burnout may be critical for identifying potential interventions to address acute care clinician burnout and thus improve clinician well-being and patient care outcomes.

Evidence that crowded, congested acute care environments may influence clinician burnout stems from research on how these environments impact patients. Recent literature suggests that acute care environmental factors influence patients’ secondary psychological and cardiovascular disease (CVD) risk. For example, ED patients evaluated for life-threatening illnesses such as acute coronary syndrome (ACS) or stroke are often exposed to crowded and at times chaotic EDs for prolonged periods of time.(6, 7) Nearly 1 in 8 of ED patient surviving ACS events go on to develop posttraumatic stress disorder (PTSD) symptoms, and ED overcrowding during patient evaluation is linearly associated with subsequent PTSD risk.(8) In addition to crowding, treatment in “hallway beds” also appear to influence patients’ experience of care and subsequent psychological adjustment.(9) Other research suggests that 1 in 5 ICU patients subsequently develop PTSD.(10) Although little is known about how ICU environmental factors influence PTSD risk, noise is one factor that has been suggested to impact patients’ psychological experiences.(11)

While there exists a body of research on the acute care environmental influences on patients who spend hours to days in those settings, there has been no systematic investigation of the effect of acute care environments on the clinicians who serve in them for months to years. It is possible that elements of the acute care environment that impact patients – such as ED crowding and the development of PTSD– also impact clinicians, even if clinicians may be better prepared for those experiences and trained to cope with them. Indeed, the higher rates of burnout in acute care clinicians,(1, 12) along with evidence from burnout studies among twins,(13) suggests that environmental factors may be important targets for study and possible intervention.

Emerging evidence suggests that modifiable ED factors may be associated with development of burnout, as well as conditions such as PTSD and depression. For example, past work has found that stress is compounded by frequent intense interactions with high complexity patients, and ED overcrowding has been proposed as a cause of the high rate of burnout in ED clinicians.(14) Further, hospital overcrowding is associated with nurses’ work absences (15) and self-reported chaotic work environment is associated with primary care physician burnout.(4)

The impact of burnout on clinicians is broad, including increased risk for depression and substance abuse.(16) Burnout may pose other health risks; for example, burnout is an established risk factor for CVD. In the Finnish Health 2000 Study, burnout was associated with increased prevalence of CVD and predicted mortality at 10 year follow-up in workers < 45 years of age.(17) This increased CVD risk is another possible parallel with the experience of acute care patients. Our recent meta-analysis found that PTSD following cardiac events was associated with a doubling of risk for recurrent cardiovascular events and mortality(18), and others have found that psychological disorders are associated with increased health care utilization, recurrent stroke, and mortality in stroke patients.(19)

Adverse environmental factors may not only negatively impact both patients' and clinicians' psychological well-being, but may also impact patient care. Burnout has been associated with less empathetic communication, job absenteeism and increased medical errors.(1, 20) The combined impact of burned out physicians practicing in demanding acute care environments - represents a near perfect storm further exacerbating patient distress and downstream psychological and health risks.

The most pressing question is how can we apply these concepts to address the problem of burnout in acute care clinicians? A recent review of interventions for physician burnout concluded that institutional interventions targeting the working environment showed promise at reducing burnout, although none of the reviewed studies focused on interventions with acute care clinicians.(21) The Critical Care Societies Collaborative which recently discussed burnout among ICU clinicians noted the importance of the work environment but focused on organizational aspects such collaboration and leadership rather than environmental factors. (20) Therefore, research on the potentially unique role of acute care environmental factors on clinician well-being may be under recognized and vital. We know that high levels of crowding adversely impact patients, but we need to know whether and how they impact clinicians. This information will guide tailored interventions to offset risk in patients and providers, all of whom are daily exposed to potentially harmful conditions.

Future interventions for acute care physicians could include work cycles/schedules that optimize staffing models to adjust for real time changes in crowding, which may improve clinician well-being, patient outcomes, and healthcare costs. Other hospital interventions designed to enhance the work-flow in a crowded environment – such as overlapping clinical shifts or the use of scribes – should focus not just on implications for clinical productivity, but also on implications for clinician well-being.

Like an engine running constantly to pull a heavy load up a steep mountain, clinicians mired in a work environment besieged by factors such as hospital crowding may suffer significant distress, resulting in a professional sense of feeling “burned out”. The adoption of a research program to identify and target modifiable aspects of the acute care environment that influence burnout may ultimately improve not only clinician well-being and career longevity, but also optimize patient care and hospital outcomes.

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