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Emergency departments (ED) save lives, but some modifiable ED factors may cause patients harm in the long term. The goal of the proposed research is to benefit millions of patients by identifying those ED factors that are associated with poor long-term psychiatric and medical prognosis after ED treatment.

Most medical contexts are calm and predictable, but EDs frequently are not. Overcrowding and associated factors vary substantially through the course of a single day in almost every ED in the US, with some hours characterized by calm and quiet and others by overcrowding and chaos. We have found that patients treated for acute cardiac events when the ED is crowded are at increased risk for developing posttraumatic stress disorder (PTSD) symptoms, and that PTSD symptoms after a cardiac event are associated with a doubling of risk for a subsequent cardiac event or mortality. Further, research conducted in the past two years has shown that acute cardiac patients treated in crowded EDs are at increased risk for in-hospital and 1-year mortality. It is possible that ED factors increase the risk of PTSD, which in turn may lead to worse cardiac outcomes.

Although many of the hypothesized iatrogenic aspects of EDs are modifiable, clinical guidelines ignore them and very few EDs have taken the steps necessary to address them. In fact, while ST-segment elevation myocardial infarction [STEMI] patients are treated in accordance with well-defined clinical pathways that ensure they are moved quickly through the ED, no such guidelines govern the ED treatment of over 1 million patients hospitalized annually in the United States with non-ST-segment elevation MI (NSTEMI) or unstable angina (UA). Thus, these patients are often exposed to potentially harmful ED factors for 12 hours or longer while they wonder whether they are having a life-threatening heart attack. Whether ED factors increase risk for PTSD and subsequent cardiac events/mortality in NSTEMI/UA patients has not been tested comprehensively.

We propose observing a cohort of patients with NSTEMI/UA from presentation in the ED through inpatient care. We will measure 3 potentially harmful ED factors: (1) *crowding* (census, wait time, and exposure to others' critical care); (2) *interpersonal factors* (doctor-patient communication, presence and effectiveness of social support); and (3) *patient reactions* (physiological arousal and psychological arousal). Research coordinators will first capture real-time crowding data and patients' psychological reactions briefly in the ED then assess patient reactions and interpersonal factors comprehensively during inpatient stay. A clinician will interview participants by telephone to determine PTSD status 1 month after baseline, and we will ascertain cardiac event recurrence and all-cause mortality (ACM) 1 year after baseline.

Potentially harmful ED factors are modifiable. This research will determine whether ED factors increase risk of cardiac recurrence, mortality, and PTSD in the more than 1 million NSTEMI/UA patients treated in US EDs every year, identify those factors that are most important to target, and point to interventions to offset that risk.
