P103 A human factors-based framework analysis for patient safety: the trauma resuscitation using in situ simulation team training (TRUST) experience
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Introduction: Effective trauma resuscitation requires a coordinated team approach, yet there is a significant risk for error. These errors can manifest from sequential team- and knowledge based failures, defined as latent safety threats (LSTs). In situ simulation (ISS), a point-of-care training strategy, provides a novel prospective approach to identify factors that impact patient safety. This study quantified and formulated a hierarchy of LSTs during risk-informed ISS trauma resuscitations. Methods: At a Level 1 trauma centre, we conducted 12 multi-disciplinary, unannounced ISSs to prospectively identify trauma-related LSTs. Four, risk-informed scenarios were developed based on 5 recurring themes found within the trauma program’s morbidity and mortality process. The actual, on-call trauma team participated in the study. Simulations were video recorded with 4 cameras, each positioned at a different angle. Using a framework analysis methodology, human factors experts transcribed and coded the videos. Thematic structure was established deductively based on existing literature and inductively based on observed ISS events. All LSTs were prioritized for future patient safety, systems and ergonomic interventions using the Healthcare Failure Mode and Effect Analysis (HFMEA) matrix. Results: We identified 893 LSTs from 12 simulations. LST analysis resulted in 8 themes subcategorized into 43 codes. Themes were associated with team-, knowledge- or system-related issues. The following themes emerged: situational awareness, provider safety, mental model alignment, team/individual responsibility, team resources, equipment considerations, workplace environment and clinical protocols. The HFMEA hazard scoring process identified 13 high priority codes that required urgent attention and intervention to mitigate negative patient outcomes. Conclusion: A prospective, video-based framework analysis represents a novel and robust approach to LST identification within trauma care. Patterns of LSTs within and between simulations provide a high degree of transparency and traceability for an inter-professional trauma program review. Hazard matrix scoring facilitates the classification and prioritization of human factors interventions intended to improve patient safety.

Keywords: trauma, simulation, patient safety