

IN PRACTICE

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TRAUMA SIMPROVE: DEVELOPING A STRATEGY TO DELIVER SYSTEM-TESTING SIMULATION TO IMPROVE TRAUMA RESUSCITATION

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Introduction: The provision of major trauma resuscitation in the emergency department (ED) is a life-saving, time-critical multidisciplinary (MDT) process that is susceptible to latent safety threats (LSTs). Testing the system response using simulation can yield valuable lessons for improving patient safety [1]. No 'blueprint' currently exists to guide planning and delivery of this quality improvement (QI) process within NHS acute EDs that form part of major trauma networks (MTNs). This project aimed to develop and pilot a replicable strategy for delivering in-situ simulation to test and improve trauma resuscitation systems.

Methods: The strategy development process involved attending relevant webinars and reviewing the existing literature on transformative simulation in critical care scenarios, including resources from specialist interest groups of the Association for Simulated Practice in Healthcare [2]. Areas targeted as needing creative solutions included how to formally conduct a needs assessment, identify barriers to delivery and select relevant outcome measures to assess impact. A steering group was formed via a collaborative approach with the SouthWest MTN, local and regional simulation services and the local ED. The project was registered with the QI department at the regional major trauma centre and a pilot was conducted.

Results: Process mapping and timeline development were undertaken. Early stakeholder engagement was deemed crucial and these were identified as trauma leadership, clinical teams, and support services such as transfusion and radiology. Needs assessment methods included focused stakeholder discussions and examination of local critical incident reporting systems. Key planning decisions included participant pre-briefing, consent considerations, and digital recording. A plan-do-study-act (PDSA) QI

methodology guided the simulation, which identified LSTs using a Systems Engineering Initiative for Patient Safety (SEIPS) framework [3], measured performance timescales, assessed adherence to national trauma registry audit standards and captured participant satisfaction using a tailor-made survey. Final stages included scenario design and resource coordination. Debriefing used a SEIPS-based chronological analysis. The pilot delivered at the local major trauma centre identified 11 actionable recommendations and generated strong participant satisfaction.

Discussion: Further work planned includes repeating the simulation after implementation of these recommendations to assess impact and complete the PDSA cycle. A delivery toolkit has been created to support the rollout of the QI project across all trauma units in the network. The strategy outlined above is adaptable and scalable, showcasing the creative intersection of simulation and QI in a busy NHS department. This approach has the potential to inform national simulation-based QI efforts in trauma care.

Ethics Statement: As the submitting author, I can confirm that all relevant ethical standards of research and dissemination have been met. Additionally, I can confirm that the necessary ethical approval has been obtained, where applicable.

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