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SIMULATING SUCCESS: A SIMULATION CURRICULUM TO STRENGTHEN PAEDIATRIC POLYTRAUMA MANAGEMENT IN A PAEDIATRIC MAJOR TRAUMA CENTRE

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Introduction: Birmingham Children's Hospital (BCH) Emergency Department (ED) serves as the paediatric major trauma centre (MTC) for the West Midlands and Central England, managing the region's most severely injured children. Due to the high acuity but low frequency of such cases, clinician experience and confidence are often limited [1].

This project aimed to design and implement a paediatric trauma simulation curriculum and assess whether this intervention can strengthen clinical skills, improve teamwork, promote adherence to guidelines, and improve clinician confidence [1,2].

Methods: A paediatric trauma simulation curriculum was designed collaboratively by education fellows and emergency medicine clinicians at BCH ED. The curriculum integrated evidence-based guidelines and included a variety of paediatric trauma scenarios, such as haemorrhage control, penetrating and blunt trauma, and resuscitation. The simulation curriculum was designed using the principles of a spiral curriculum, allowing clinicians to revisit core concepts at increasing levels of complexity over time with simulation repetition [3].

High-fidelity multidisciplinary simulations were conducted approximately bi-weekly over six months. Each session included a pre-simulation briefing, in-situ simulation, and debriefing focused on technical and non-technical skills.

Structured surveys collected feedback on simulation relevance, usefulness, and self-reported confidence. Based on participant feedback and faculty reflection, the curriculum was continuously refined to meet evolving learning needs.

Results: Over seven months, 73 participants—including students, nursing staff, advanced nurse practitioners, and doctors of varying seniority—participated in the programme.

Key findings include:

- 92% of participants agreed or strongly agreed that the simulations were useful and relevant.
- 96% agreed or strongly agreed that the sessions were interactive.
- 93% reported improved confidence in managing paediatric trauma cases, with an average increase of 29% in self-reported confidence. Participants with initially lower confidence levels experienced a higher-than-average confidence boost of 37%.

However, 8% of participants felt their understanding of underlying theory and principles did not improve, indicating areas for further curriculum development.

Discussion: This structured simulation curriculum significantly enhanced participants' confidence and competence in paediatric trauma management, particularly among those with initially lower confidence. These results suggest regular, in situ high-fidelity simulation training effectively addresses knowledge gaps and enhances clinical and non-technical skills.

As informed by participant feedback, future curriculum modification will focus on strengthening theoretical components and providing post-simulation resources to consolidate learning.

Overall, this programme reinforces the critical role of simulation in preparing ED teams for the high acuity but low occurrence of paediatric polytrauma care.

REFERENCES

1. Jensen AR, McLaughlin C, Wong CF, McAuliff K, Nathens AB, Barin E, Meeker D, Ford HR, Burd RS, Upperman JS. Simulation-based training for trauma resuscitation among ACS TQIP-Pediatric centers: Am J Surg. 2019 Jan;217(1):180–185. doi: 10.1016/j.amjsurg.2018.06.009. Epub 2018 Jun 18. PMID: 29934123; PMCID: PMC7169990.
2. Harden RM. What is a spiral curriculum? Med Teach. 1999;21(2):141–3. doi: 10.1080/01421599979752. PMID: 21275727.
3. Thim S, Henriksen TB, Laursen H, Schram AL, Paltved C, Lindhard MS. Simulation-Based Emergency Team Training in Pediatrics: A Systematic Review. Pediatrics. 2022 Apr 1;149(4):e2021054305. doi: 10.1542/peds.2021-054305. PMID: 35237809.

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