ORIGINAL RESEARCH

A81

SIMULATED PEM ADVENTURES: INTEGRATION OF NARRATIVE AND SIMULATION FOR INTERACTIVE LEARNING IN PAEDIATRIC EMERGENCY MEDICINE AT INTERNATIONAL EMERGENCY CONFERENCES

Dani Hall[1,2], Victoria Meighan[3,4], Rachael Mitchell[5], Constantinos Kanaris[2,6], Kat Priddis[2,7], Sarah Davies[8], Aidan Beegan[9], Michael Barrett[10,11]; *[1]Department of Paediatric Emergency Medicine, Children's Health Ireland, Dublin, Ireland; [2]Blizard Institute, Queen Mary University of London, London, UK; [3]Department of Emergency Medicine, Tallaght University Hospital, Dublin, Ireland; [4]Trinity College Dublin, Dublin, Ireland; [5]King's College Hospital NHS Foundation Trust, London, UK; [6]Cambridge University NHS Foundation Trust, Cambridge, UK; [7]West Hertfordshire Teaching Hospitals NHS Trust, London, UK; [8]St Mary's Hospital, Imperial College Healthcare Trust, London, UK; [9]Clinical Research Centre, Children's Health Ireland, Dublin, Ireland; [10]Paediatric Emergency Research and Innovation, Department of Paediatric Emergency Medicine, Children's Health Ireland, Dublin, Ireland; [11]Women's and Children's Health, School of Medicine, University College Dublin, Dublin, Ireland*

Correspondence: dani.hall@doctors.org.uk

10.54531/GJDI2090

Introduction: Narrative theory states that stories allow learners to contextualise education in a way that is valid to them [1,2]. Simulation-based education is an effective teaching modality, correlating with improved clinical performance. Learners benefit most from simulated environments they are engaged with and believe to be authentic [3]. Traditionally this can be limited by the number of participants. We sought to validate a combination of narrative theory and simulation-based education in Paediatric Emergency Medicine (PEM) education at international conferences.

Methods: We delivered an interactive simulation-based session at the Royal College of Emergency Medicine 2024 (RCEM24) conference. Using a pre-test post-test design, knowledge of paediatric Toxic Shock Syndrome (TSS) resuscitation principles was assessed at baseline and six weeks. Team management of a child with TSS was simulated on stage. Using live-voting technology, the audience voted for next management steps in five elements of the case. Each voting choice was debriefed live, and linked to recent and key evidence-based literature. Human factors within the resuscitation were also demonstrated and debriefed live.

An online questionnaire was emailed to attendees six weeks after the conference, repeating the same five questions and assessing practice-changing behaviour. Statistical analysis was performed using Two sample Z test of proportions.

Ethical approval was granted by Queen Mary University of London.

Results: Between 87 and 103 live-vote responses per interactive question were captured during the session. Forty-four attendees (43%) completed the post-conference survey at six weeks.

The proportion of correct live scores pre-education was low for all questions, indicating low baseline knowledge. The proportion of correct scores at six weeks was compared. Post-education scores were high, and improvement was statistically significant for all questions ($p<0.05$) (Table 1).

One attendee had managed paediatric TSS in the six weeks post-RCEM24, and said the evidence taught changed their practice. Of the remaining 43 respondents, 38 (88%) said the session would result in a change in their practice in the future.

Discussion: Our results demonstrate that by combining narrative, authentic simulation and learner interaction, educators can engage learners in paediatric resuscitation education, improve knowledge, and generate practice-changing behaviour. This methodology can be applied to a large group setting, increasing accessibility to this evidence-based learning experience. This study will be reproduced at the Irish PEM 2025 conference to validate the results, extending post-education assessment to 12 weeks to explore sustained change.

Combining storytelling via simulation with audience participation makes simulation accessible and incredibly powerful.

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.

REFERENCES

1. Milota MM, van Thiel GJMW, van Delden JMM. Narrative Medicine as a Medical Education Tool: A Systematic Review. Medical Teacher. 2019 Apr. 14;41(7):802–810.
2. Meisel ZF, Metlay JP, Sinnenberg L et al. A Randomized Trial Testing the Effect of Narrative Vignettes Versus Guideline Summaries on Provider Response to a Professional Organization Clinical Policy for Safe Opioid Prescribing. Annals of Emergency Medicine. 2016 Dec;68(6):719–728.
3. Dankbaar MEW, Alsma J, Jansen EEH, van Merrienboer JJG, van Saase JLCM, Schuit SCE. An experimental study on the effects of a simulation game on students' clinical cognitive skills and motivation. Adv in Health Sci Educ. 2016;21:505–521.

SUPPORTING DOCUMENTS – TABLE 1-A81

Table 1. Proportion of correct pre and post-education scores at 6 weeks. Statistical analysis performed using Two sample Z test of proportions. Results considered significant if p<0.05.

Question descriptor	Pre-education proportion of correct responses during the live session, mean (95% CI)	Post-education proportion of correct responses at 6 weeks, mean (95% CI)	Estimate for difference, mean (95% CI)	P-value
Timing of intubation	58.3 (48.8–67.8)	81.8 (70.4–93.2)	23.5 (8.6–38.4)	0.006
Ventilation strategies	35.6 (25.5–45.7)	72.7 (59.5–85.9)	37.1 (20.5–53.7)	<0.001
Pulmonary haemorrhage	5.2 (0.7–9.6)	68.2 (54.4–82.0)	63.0 (48.5–77.5)	<0.001
Third line inotropes	53.8 (43.6–64.0)	93.2 (85.8–100)	39.4 (26.7–52.1)	<0.001
Intravenous immunoglobulin	65.2 (55.5–74.9)	90.9 (82.4–99.4)	25.7 (12.8–38.6)	0.002