

TRANSFORMATION

IN PRACTICE

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IN SITU SIMULATION AS A TOOL TO IMPROVE ANTICOAGULANT REVERSAL MANAGEMENT: A NOVEL APPROACH TO DEBRIEFING TO IMPROVE SYSTEMS AND DEVELOP PATHWAYS

Mohamed Shirazy¹, Emma GreenWood², Lousie McKee², Nicola Weatherup²; ¹NIMDTA, Belfast, United Kingdom; ²Belfast HSC Trust, Belfast, United Kingdom

Correspondence: mohamed_shirazy@yahoo.com

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Introduction: Managing anticoagulation in emergencies requires swift decisions, collaboration, and precision. Despite existing guidelines, real-world practice often suffers from delays and inconsistencies. This Quality Improvement Project (QIP) at the Royal Victoria Hospital (RVH) used in situ simulation combined with a novel debriefing model integrating, Figure 1:

- Scottish Debrief Model – for emotional processing and team reflection.
- SEIPS framework – to analyse system-level safety factors.
- i-SOG – to highlight gaps between intended and actual workflows.

This structured debriefing enabled identification of performance and system issues while aligning with the four Meta-Debriefing pillars:

1. Theory-based – rooted in established models.
2. Psychologically safe – fostering open discussion.
3. Context-dependent – focusing on ED-specific anticoagulation challenges.
4. Formative – driving practical improvements and learning.

Methods: Three in-situ simulation sessions simulated major haemorrhages in anticoagulated patients. ED doctors, nurses, and pharmacists participated; senior clinicians and QI leads observed. Each session was followed by structured debriefs assessing: Individual/team performance (Scottish Model), System inefficiencies (SEIPS), and Workflow discrepancies (i-SOG).

Results: First simulation exposed major issues:

- Delays due to poor access to reversal agents
- Uncertainty around guideline interpretation
- Environmental constraints like poor layout

Interventions included:

- Improved drug storage and accessibility
- Simplified, more visible guidelines
- Environment redesign for better workflow
- Targeted team training

Second simulation (post-intervention):

- Better protocol adherence
- Quicker, more confident drug handling
- Stronger communication and teamwork

Third simulation (with new pathway):

- Marked improvement in protocol compliance
- Reduced drug preparation delays
- Closure of key workflow gaps

Discussion: This debrief model provided a comprehensive view of individual and system-level issues. It led to the creation of a practical, ED-specific anticoagulation reversal pathway, addressing both human and systemic challenges. The method upheld the four Meta-Debriefing principles, ensuring simulations were safe, relevant, and improvement-oriented.

By validating the interventions through measurable improvements, this approach proved effective. It offers a scalable model for embedding into routine emergency training, enhancing clinician readiness, workflow efficiency, and patient safety in high-risk scenarios.

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. Holden RJ, Carayon P, Gurses AP, Hoonakker P, Hundt AS, Ozok AA, Rivera-Rodriguez AJ. SEIPS 2.0: a human factors framework for studying and improving the work of healthcare professionals and patients. *Ergonomics*. 2013 Nov 1;56(11):1669–86.
2. Patterson MD, Geis GL, Falcone RA, LeMaster T, Wears RL. In situ simulation: detection of safety threats and teamwork training in a high risk emergency department. *BMJ quality & safety*. 2013 Jun 1;22(6):468–77.
3. Kumar P, Collins K, Oliver N, Duys R, Park-Ross JF, Paton C, Laws-Chapman C, Eppich W, McGowan N. Exploring the Meta-debrief: Developing a Toolbox for Debriefing the Debrief. *Simulation in Healthcare*. 2024 Oct 17:10–97.

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SUPPORTING DOCUMENTS – FIGURE 1-A94

