## IN PRACTICE

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### SIMULATION AND QUALITY IMPROVEMENT: A BLENDED APPROACH TO EMBED RESUSCITATION GUIDELINE RECOMMENDATIONS IN THE CARDIAC CATHETER LABORATORY

**Suzanne Scaffardi**[1]; [1]*Royal Free Hospital, London, United Kingdom*

**Correspondence:** suzanne.scaffardi@nhs.net

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**Introduction:** A quality improvement (QI) project using in-situ simulation (ISS) was undertaken at a Cardiac catheterisation laboratory (CCL) in a London teaching hospital. The CCL provides 24-hour primary percutaneous coronary intervention (PPCI) for patients having a heart attack and is a lifesaving treatment. Cardiac arrest can happen during the procedure as a heart attack complication.

Guidance released in 2021 [1] advocates early use of a mechanical cardiopulmonary resuscitation (M-CPR) device after the first cycle of CPR meaning PPCI can continue as it is safe to deliver fluoroscopy, which may facilitate treatment intervention for the potential cardiac arrest reversible cause. A baseline audit showed this was not happening.

**Methods:** Institute of Health Improvement (IHI) Model for Improvement QI approach was utilised alongside in-situ simulation (ISS) over 6 months, the aim statement was to apply M-CPR device during cardiac arrest in the CCL after 1st cycle of CPR.

A scoping survey to understand multi-disciplinary staff opinion and experience from cardiac arrests in the CCL was displayed in Pareto charts to target high impact change ideas.

Plan-Do/Simulate-Study-Act (PDSA) cycles using inter-disciplinary ISS and simulation debrief, using PEARLs for systems integration tool [2], allowed exploration of staff lived experience, training gaps, system issues, latent threats, and potential solutions.

Run charts were used to capture data and ISS pre and post questionnaires for training evaluation.

**Results:** The M-CPR device became consistently used after 1st cycle of CPR and a shift on the run chart was seen.

There was statistical (SPSS 27) significance from simulation evaluation in increase in confidence in leadership ($p<.001$) and speaking up ($p<.001$) at cardiac arrests in the CCL.

Improvement ideas were developed from simulation debriefing.

**Discussion:** QI methodology and MDT ISS facilitated greater understanding of contextual issues of system interaction and the human side of change. It supported a team approach and provided a voice for staff.

Increasing staff confidence and speaking up during a cardiac arrest was not part of the original project aims but demonstrates how simulation has supported behaviour traits of leadership and communication, by making staff feel more confident to act in real life and initiate the "right things" to happen.

PDSA cycles demonstrated how education is not enough to impact a change in practice. This is an important consideration in the value of what ISS can offer organisations in terms of learning about everyday work and supporting learning to enact change.

**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

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