

Aim: How can simulation-based methodology be used to support clinical departments on a large scale to adapt/integrate/prepare in moving to a brand-new hospital?

Method/design: Collaboration with authors of PEARLS for system integration use ^[1], using it as the main framework for delivery and structure of PESSI. Stages of delivery were: pre-phase work, system testing day, debrief/reflection and evaluation. Immediate feedback of enjoyment and learning was collated from all participants. Three-month post-move feedback is planned to review ongoing impact/behaviour change plus analysis of safety incidents.

Implementation outline: Pre-phase work involved meeting stakeholders and establishing aims of testing. Ward managers were key departmental links, meeting with members of PESSI to plan scenarios. System testing days involved familiarizing themselves with the environment, followed by 'day in the life' simulations with a representation of the whole team. All participants were called 'co-faculty' and knew exactly what would happen. Debrief involved facilitated conversations with the whole team describing reactions, and deeper analysis of the key events, with concerted efforts by facilitators to give a balanced approach of positives and challenges. A short report was given back to the department detailing the findings teams would need solutions to. Solutions from simulation were implemented prior to the move, increasing staff confidence, with many feeling PESSI played a major role in feeling prepared for the new site. The PESSI framework is being utilized in adult services and we hope to publish our methodology to share with the wider simulation community.

REFERENCE

1. Dubé M, Reid J, Kaba A, et al. PEARLS for systems integration. *Simul Healthcare*. 2019;14(5):333–342.

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THE CREATION OF A 'CHOOSE YOUR OWN ADVENTURE STYLE' VR TRAINING PACKAGE FOR POST ANAESTHETIC CARE UNIT (PACU) STAFF

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Background: Lack of training materials for Post Anaesthetic Care Unit (PACU) staff leads to the creation of a 'choose your own adventure' style VR training package, working collaboratively with the TEL team and incorporating quality improvement methodology prior to rollout. The development of this training package was initiated following the introduction of a theatre-specific induction programme, during which it was discovered that the learning opportunities for PACU staff were limited, particularly during the COVID-19 response.

Aim: Therefore, the aim of creating this learning package was to make available more interactive learning opportunities for PACU staff, giving them the chance to develop their knowledge and skills in a safe environment, without the pressure of a live patient.

Method/design: Planning was completed in collaboration with a Theatre Practice Educator and Simulation and Human Factors Fellow. This was initiated with the use of a modified decision tree as shown in figure one. Following completion of this, the Technology-Enhanced Learning (TEL) Lead and clinical expert advice were sought to assist in the creation of high-quality content. Communication was

then sent out seeking actors and location/dates for filming were planned. Appropriate consent was gained from all participants involved. Filming had to be planned around theatre utilization; therefore, it was necessary for this to take place on audit sessions dedicated to training of theatre staff. After the completion of filming, further collaboration with the TEL Lead was required to create the learning package. On completion of the package, it was shared with experienced members of PACU staff to test the quality and validity of the learning experience. At this point, a quality improvement approach was adopted with the use of PDCA (Plan-Do-Study-Act) cycles. Adopting this approach allowed adjustments to be made to the package before it was utilized on a larger scale.

Implementation outline: The learning package was implemented rapidly after completion. It was immediately included in the Theatre Induction Programme for every PACU member of staff and was also then available to be utilized on audit training sessions for existing PACU staff. This learning package was a creative approach, exploiting technology not yet harnessed within our speciality. Patient post-Anterior Repair brought into PACU with an LMA (Laryngeal Mask Airway) *in situ*, spontaneous respirations are present.

Patient regains consciousness: LMA expelled:

1. Laryngospasm – recognize – O₂, Waters Circuit/PEEP
2. Vomit – positioning – suction – anti-emetics
3. PV PAIN – check wound – analgesia (ineffective)

Get help

1. Laryngospasm has broken with PEEP
2. Auscultation and order chest x-ray
3. Multimodal analgesia – add patient PV pack band

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PRACTICE MADE PERFECT: THE EVOLUTION OF AN LVAD ALGORITHM THROUGH CLINICAL SIMULATION

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Background: In total, 70% of patients implanted with a left ventricular assist device (LVAD) will experience a life-threatening emergency within the first year of implantation^[1,2]. Complexities surrounding deterioration and resuscitation in these patients are clinically vast and intimidating to the staff who encounter them. This may present significant challenges for staff caring for this complex patient group and often leaves them feeling anxious and insufficiently prepared when presented with LVAD deterioration. A literature review revealed a lack of clear guidance for the management of in-hospital LVAD emergencies. As a result, an organization-wide project was launched to design the first ever, non-brand-specific, LVAD emergency algorithm. A multi-disciplinary clinical simulation programme was fundamental to the evolution of the tool and the clinical decision-making, competence and confidence of the staff group.

Aim:

- Develop and introduce an emergency algorithm that provides a standardized approach to LVAD patient emergencies.
- Increase staff confidence, competence and clinical decision-making.

- Use simulation to facilitate and enable staff to solve complex problems using standardized assessment and management while ensuring transparency and equitable treatment in situations of rapid clinical deterioration.

Method/design: The LVAD Simulation and Algorithm project commenced through the trial of an out-of-hospital algorithm developed by Bowles that was adapted for in-hospital use. Direct feedback from staff attending low-fidelity ward-based simulations was used to consistently develop and adjust the algorithm from a three-page flowchart to a single page (Figure 1). The invaluable feedback and constant observation of the algorithm through simulation has allowed for the evolution of a clear, concise tool that provides staff of all skill sets with a defined course of action during an LVAD emergency.

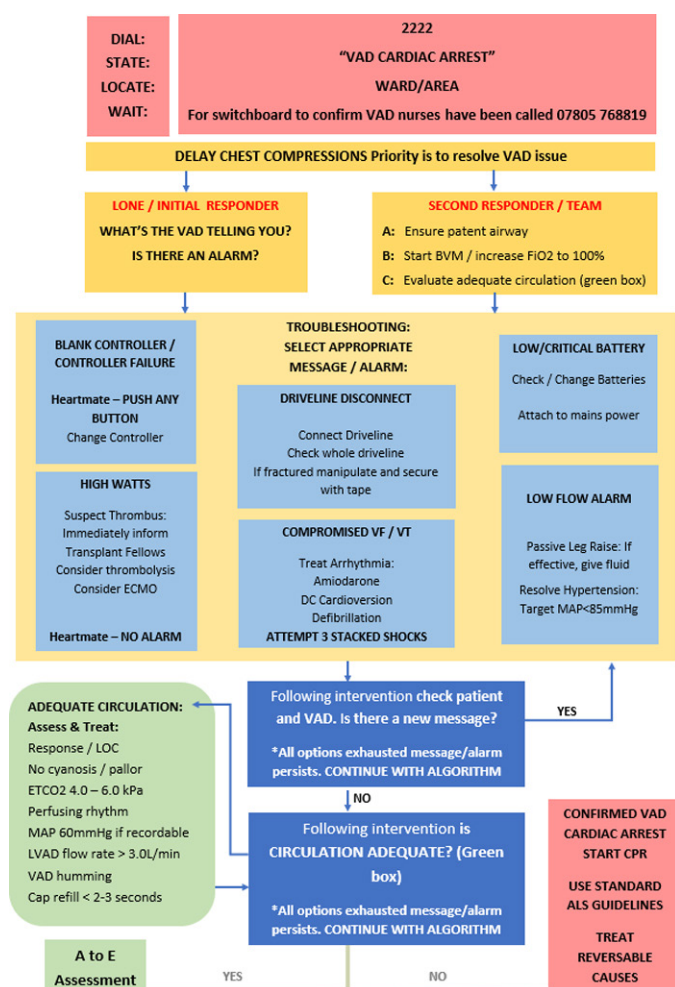


Figure 1: Practice made perfect

Implementation outline: Simulation has proved to be essential in developing this innovative, unique, patient safety tool that has increased staff confidence and competence throughout the organization while providing a safe place for clarifying questions. The single-page algorithm continues to be practised via simulation weekly with an ever-increasing multi-disciplinary presence. Staff report increased confidence not only in dealing with LVAD emergencies but also in their ILS and ALS skills, all of which increase safety, quality care for patients. This one of a kind algorithm is now finalized and awaiting organizational review, following which a complete evaluation of its effectiveness will be conducted.

REFERENCES

1. Barg FK, Kellom K, Ziv T, et al. LVAD-DT: culture of rescue and liminal experience in the treatment of heart failure. *Am J Bioethics*. 2017;17(2):3–11.
2. Bowles CT, Hards R, Wrightson N, et al. Algorithms to guide ambulance clinicians in the management of emergencies in patients with implanted rotary left ventricular assist devices. *Emerg Med J*. 2017;34(12):842–50.

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STRIVING TO THRIVE: DEVELOPING AN INNOVATIVE REGION-WIDE MEDICAL REGISTRAR PREPARATION SIMULATION-BASED COURSE

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Background: The COVID-19 pandemic has led to disruption and missed educational opportunities for Internal Medicine (IM) Year 2 trainees who shall progress to the second stage of their training in August 2021, stepping up to the medical registrar role. It had become apparent that some of these trainees may not be currently performing at the level expected for this stage of their training and may encounter some difficulties during this transition period.

Aim: We were tasked by Health Education England (West Midlands) to design and implement an innovative region-wide medical registrar preparation course, utilizing simulation-based education. The courses required standardized content that could be delivered by either face-to-face or virtual modalities across multiple centres in the region.

Method/design: Two separate high-fidelity simulation courses were designed to deliver key aspects of the IM training curriculum with a clear focus on the behaviours, attitudes and skills required to perform as a junior medical registrar: 'Thrive'. A 1-day course designed for trainees who are expected to be able to progress to IM year 3 without any concern. These courses were planned to be run by other regional centres to their local trainees using either a face-to-face or virtual format. 'Strive'. A 2-day course designed for those trainees who have been identified as needing extra support to be able to progress to IM year 3. These courses were planned to be run via a face-to-face format at our SimWard to trainees from across the region. Course content included a mix of high-fidelity simulation scenarios as well as workshops focussing on key areas for medical registrar preparation as identified by IM trainees:

- Leading cardiac arrests
- Debriefing
- Breaking bad news
- Prioritization and delegation
- Giving advice
- Escalating care

Implementation outline: All content was designed and produced in house to then be provided electronically to region-wide centres facilitating standardized delivery, including pre-recorded simulation scenarios to allow virtual delivery. A webinar was held to aid roll out and provide training on course delivery and content to participating centres. Courses were delivered during the spring and summer of 2021. Initial feedback has shown an increase in perceived trainee