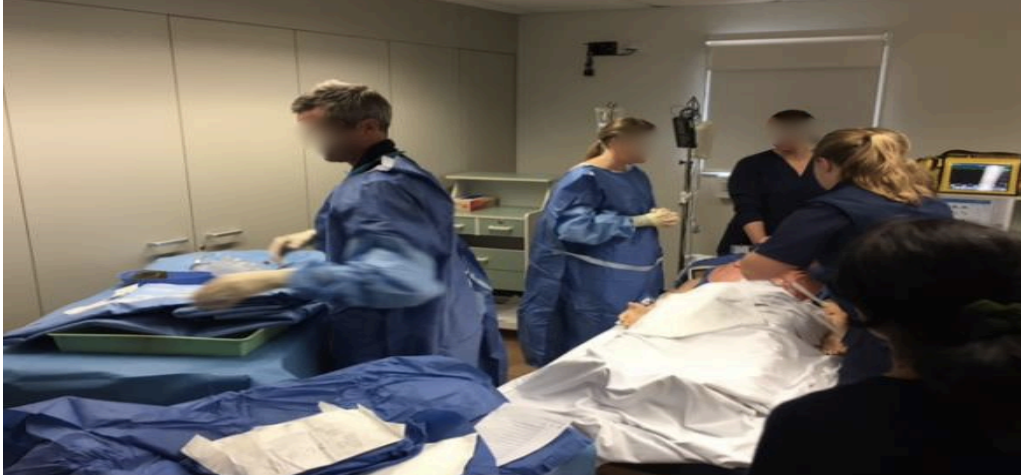


Primum Non Nocere in ICU Simulation based Education & Training

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Simulation based education has become an integral part of our ICU education and training. After many years of being an advocate and user, simulation “sex appeal” has worn off and the subtleties and nuances have become more apparent to me. I have come to realise how much harm can be done to the learning experience if sound education principles are not applied. It is apparent that the Hippocratic Oath extends to our education and training

responsibilities so I share some thoughts on how we try to prevent harm in our education activities.

Each of our education sessions is carefully planned not just for content but also to prevent adverse emotional outcomes and cognitive overload for the learner. If cognitive load is too high, learning is significantly reduced.¹ Emotions impact on cognitive load and have the potential to both negatively and positively affect the learning experience.¹ And I’ve

learnt simulation is not for everyone. As one medical participant said of a compulsory simulation session, “If I’d wanted to be an actor I would have gone to NIDA!”

Whether it be our weekly interdisciplinary simulations (R.I.S.C) or the dedicated training days for DETECT, Technical skills training in emergency sternotomy, advanced haemodynamic monitoring & advanced communication and

Inside this Blog –

Find out expert opinion by A/Prof Theresa Jacques about changing landscape of ICU education and simulation. Probably it’s time to say Good Bye to traditional approach of “see one, do one & teach one”.



debriefing workshops, it's important to plan in detail to minimise the emotional and extrinsic cognitive load and optimise the learning experience. Scenarios should be rehearsed, and constantly reviewed. Our faculty also debrief internally after all our scenarios. For example, we have recently learnt from one of our emergency sternotomy workshops that we can improve the learning experience by familiarizing participants with the contents of a sternotomy tray prior to the conduct of the scenario so precious moments are not lost during the procedure. This specific familiarization should be part of our orientation to a skills station on a rare but stressful clinical scenario



We have a responsibility to leave no emotional scars through our education sessions. Old school pompous lectures and “learning by humiliation” are out.

Our lectures and tutorials are much more interactive and all levels of staff are encouraged to participate. One ponders on the potential adverse effects of college exam processes that now include simulations and use of actors and are not followed by a debrief of the candidates. I'm not sure how feasible it would be but perhaps face to face debriefing after “viva exams” by qualified debriefers should be part of the exam process to ensure it leaves minimal scars and forms, another learning experience. Coffee conversations, “exam post mortems”, and mentoring many trainees over years suggest to me adverse effects of exam experiences are not infrequent.

Each consultant in our department is now, annually, formally assigned an ICU trainee to mentor and to support including through exams.

As we delved into the principles of education, we built research into our programme. We wanted to see if cognitive load and emotional states could be measured in the ICU environment.



We have found that this can be done very simply. By measuring emotional state and cognitive load of participants in our R.I.S.C. sessions in a formal study we have found that positive emotions of relaxed, excited and alert positively affected the cognitive load and hence learning experience. We tend to avoid unexpected simulator death as previous research has demonstrated the negative effect this can have on simulation experiences of the participants.²

We also found through a consistent approach and constant review of our simulations, cognitive load to participants could be optimized and in our study³, cognitive load was not affected by the number of

simulation experiences of the participants.

Taking on the subtleties and detailed skills of education has led to the creation of a strong multidisciplinary faculty of educators, each encouraged and supported to undertake specific simulation training. Education research has become integral. Also, adding to the faculty, a Post Graduate Fellow in Critical Care Simulation and Medical Lead in Simulation and Education to guide us all in our education and training responsibilities as many of us are of the old “see one, do one, teach one” era, has strengthened our ability to “first do no harm” in ICU education.

By

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1. Fraser K, Ayres P, Sweller, J, Cognitive Load Theory for Design of Medical Simulation, Sim Healthcare 2015; 10:295-307.
2. Fraser K, Huffman J, Ma I, et al. The emotional and cognitive impact of unexpected simulated patient death: a randomized controlled trial. Chest 2014;145:958-963.
3. S Pawar, T Jacques, K Deshpande, R Pusapati, M Meguerdichian Evaluation of Cognitive & Emotional State during multi-disciplinary critical care simulation sessions Submitted for publication

Abbreviations -

1. National Institute of Dramatic Art.
2. DETECT= Detect deterioration, Evaluate, Treat, Escalate, Communicate with your Team : A one day Multidisciplinary course for front-line clinical staff.