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Advanced life simulation: High-fidelity simulation without the high technology

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ABSTRACT

Simulation-based resuscitation education has emerged as a key to improving patient safety and numerous healthcare organisations have invested in high-fidelity simulation training centres. However, the high purchasing cost, limited portability, technical expertise and organisational skills required to coordinate these high-fidelity simulation centres are factors that limit their use as a wide-spread teaching and learning method. Creative innovation is required. The aim of this study was to pilot an inexpensive, portable, novel high fidelity humanistic simulation modality, for educating nurses and doctors in recognising and responding to the deteriorating patient. Analysis of five focus group discussions revealed the main theme of engagement in the simulation experience with three main subthemes of realism of the character, believability of the experience and being more connected. In conclusion, this innovative simulation modality offers a viable alternative for resuscitation training.

Introduction

Within hospitals patient adverse events such as a cardiac arrest or unplanned admissions to intensive care units are often preceded by a period where deterioration in the patient's condition has either gone undetected or not reported (Ludikhuize et al., 2011). Early detection of deterioration, initiating a timely response and effective action can save lives. In response to the identified need to improve patient safety, rapid response systems (RRS) have been developed and implemented worldwide (Committee on Quality of Health Care in America Institute of Medicine, 2001). RRS is a general term used to describe the various models of medical emergency response teams implemented to respond to the call to assess the deteriorating patients in the acute care setting (Committee on Quality of Health Care in America Institute of Medicine, 2001). This system bypasses the traditional hierarchical approach to medical review, opting for a more horizontal approach to allow staff to access timely assistance when a patient's condition is deteriorating (Taenzer et al., 2011). The success of this system is dependent on the ability of staff to detect patient deterioration and respond in a timely and appropriate manner (Winters et al., 2013).

Recent studies have demonstrated that education, experience and understanding of health professionals have an impact on the effective use of these response teams (Jones et al., 2009; Levett-Jones et al., 2012; Ludikhuize et al., 2012; Moola, 2012). Within Australia, approximately two-thirds of all hospitals provide regular simulation training for these emergency events (Australian Commission on Safety and Quality in Health Care, 2011). Over the last two decades, numerous health services have invested in high-technology, high-fidelity simulation centres to address training needs. These centres typically offer training of specialised staff to develop and deliver advanced life support (ALS) and RRS training (Littlewood, 2011). Such centres offer numerous benefits for simulation training in patient safety events. They provide the opportunity to practice clinical skills and develop problem solving approaches to situations within a controlled, supportive and safe learning environment (Olejniczak et al., 2010). Nurses, doctors and paramedics report increased knowledge, self-confidence and self-efficacy following participating in these simulated resuscitation-

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based sessions (Buckley and Gordon, 2011; Delasobera et al., 2010; van Schaik et al., 2011). In a 2011 study of medical-surgical nurses (n = 38) found that immersive high-fidelity simulation, combined with traditional classroom education, improved nurses' perceptions of their ability to respond to the deteriorating patient (Buckley and Gordon, 2011). The authors reported that responding in a systematic manner; assertive skills, airway management and clinical handover were the skills that participants reported the greatest level of improvement.

However, these training centres that use complex technological human patient simulators have also been criticised for their lack of clinical realism, high establishment and maintenance costs, and the need for ongoing training experts (Littlewood, 2011; Thidemann and Söderhamn, 2013; Zendejas, 2013). Additionally, health care workers describe difficulties engaging with manikins and express performance anxiety in the simulation learning environment (Fernandez et al., 2009; Hunziker et al., 2012). These issues are particularly important given the substantial resources directed to the development and sustainability of high-fidelity simulation environments (Littlewood, 2011; Zendejas, 2013). Furthermore, while simulation training has been shown to increase awareness of factors impacting on quality care, particularly effective team work and communication (Merchant, 2012; Wehbe-Janek et al., 2012; Wynn et al., 2009) there is limited evidence of its influence on improving clinical actions and outcomes.

In relation to RRS training, research is needed to understand what impact simulation training has on the effectiveness of the first responder. The first person to identify deterioration in a patient is vital for triggering RRS and for influencing better patient outcomes. If simulation is to be effective in RRS, it needs to impact positively on the thinking and actions of the first responder. An important challenge for educators is to develop simulation experiences that are easily portable, cost effective, and efficient in time to set up and mimic realism for the learners leading to deep level learning and enhancement of clinical reasoning and clinical actions. The aim of this study is to pilot an inexpensive, portable, novel high fidelity humanistic simulation modality, for educating nurses and doctors in recognising and responding to the deteriorating patient.

Humanistic simulation

Within a regional Australian University, our team has created various simulation learning experiences that utilise innovative simulation where role play with a humanistic focus is combined with simulation learning. The simulation technique, termed *Mask-Ed™ (KRS Simulation)* requires the expert educator to wear realistic silicone masks and body suits and to take on the persona of a particular patient who themselves have a carefully constructed history which enables them to be a platform for teaching and learning (McAllister et al., 2013). Learners are asked to engage with the patient, assisting him or her through a health care experience, in this case, serious health deterioration. Instead of the patient being an actor, or perhaps a real consumer, the role play involves an educator with insight into the patient experience, in role. The hidden educator is able to capture teachable moments and direct the learning experience whilst in the persona of a patient. The interaction that follows involves a three way interplay between the learner, the patient and the hidden educator. The educator needs to be knowledgeable about the content and skills being learned and discussed and may subtly guide learners to ask more probing and effective questions so that the 'patient' is effectively assisted. Additionally, the technique is designed around the use of totally realistic props so that learners can suspend the disbelief that often happens when manikins or actors seem unrealistic. The role play experience is also only semi-scripted, that is the educator has a general objective, but will interact spontaneously with learners, depending on the questions they ask or the actions they take (Fig. 1).

An extension of this humanistic simulation experience has been to create a way for learners to learn advanced resuscitation techniques as well as remembering that the patient is at the centre of the health care intervention, and needs to be respected, considered and assisted. Too often when learners experience resuscitation a disembodied part is practised on, or only mechanical proficiency is learned. The team became aware of the opportunity of combing the *Mask-Ed™ (KRS Simulation)* approach with another simulation technique which would potentially enhance the realness of the

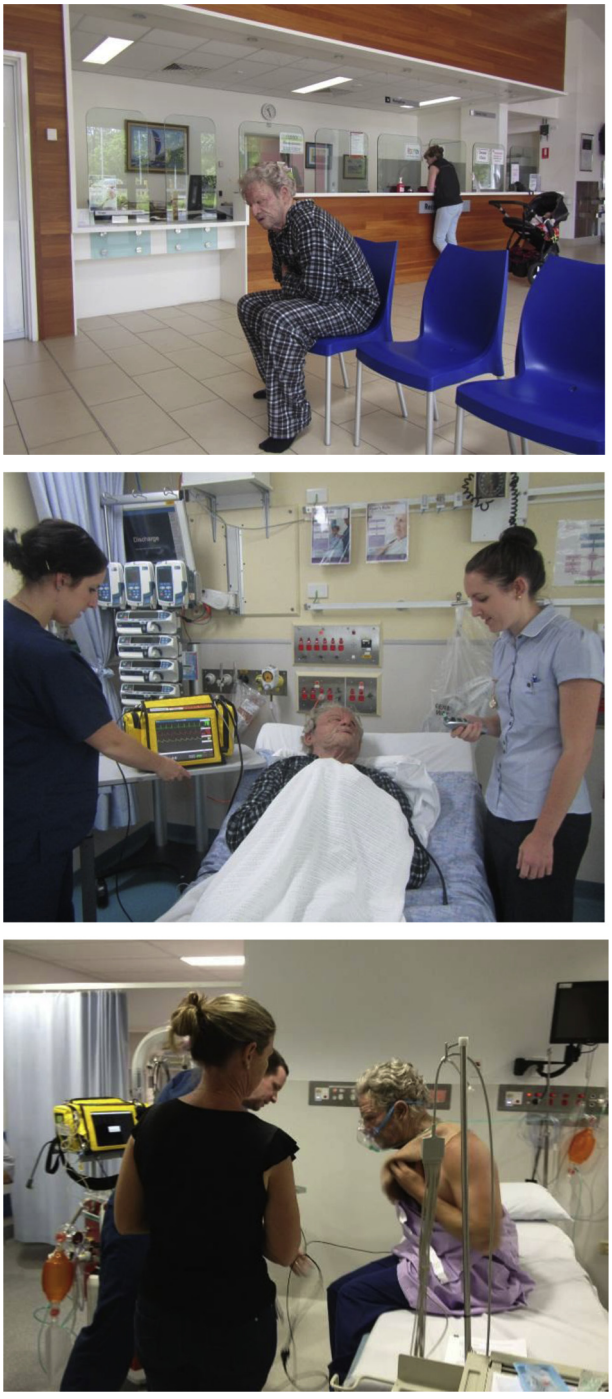

Fig. 1. Mask-Ed™ (KRS Simulation).