

## Renal interprofessional simulation and education (RISE) – using in situ simulation based education to enhance patient care and safety

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### Background

Simulation is an effective teaching tool that often takes place in a designated learning environment.<sup>1</sup> Moving simulation into the workplace has been shown to be beneficial for learning and improve patient outcomes.<sup>2</sup> Nevertheless, there is little supporting literature on the efficacy of in-situ simulation on a Haemodialysis unit.

### Aims

To assess if in situ simulation based education delivered on a Haemodialysis unit, offers effective training for staff and if patient care can be improved through identification of latent conditions.

### Methods

Nurses and health care assistants attended a half-day teaching session delivered on the outpatient Haemodialysis unit at a district general hospital. Candidates were divided into groups and given the opportunity to manage three medical emergency scenarios (gastrointestinal bleed, anaphylaxis or sepsis) for a simulated patient who was undergoing dialysis. A mannequin was developed that could be connected to a dialysis machine via a tunnelled neck line or forearm AV graft. This allowed the scenarios to run whilst using the equipment as it would be in clinical practice. A debrief was held following each case with a focus on clinical learning points, human factors and patient safety.

Pre and Post-course questionnaires were given to all candidates who took part. They assessed candidate's confidence in managing medical emergencies. Confidence in non-technical skills such as teamwork, prioritisation, seeking help and leadership were also evaluated. Candidates were given a multiple-choice questionnaire (MCQ) with questions designed to assess the skills and knowledge taught on the course.

### Results

Twenty-five pre-course and twenty-eight post-course questionnaires were completed. There was a significant improvement in candidates confidence in assessing the clinical scenarios tested: Upper GI bleed ( $P<0.001$ ), anaphylaxis ( $P<0.001$ ), and septic shock ( $P<0.001$ ). Eleven participants highlighted a latent condition that had the potential to impact patient care. The most commonly detected condition was that simulation improved staffs awareness of the environment, such as "how to find equipment in a resus trolley".

There were twenty-four pre and post-course MCQs completed. All candidates improved their scores with a mean increase from 9.92 to 12.13,  $n=24$  ( $P<0.001$ ) following the simulation.

### Discussion

In situ simulation is an effective method for training staff how to manage acutely unwell patients on dialysis. Improved confidence in the management of acute scenarios was supported by an improved knowledge base and enhanced human factors skills.

In-situ simulation also offers the opportunity to detect latent conditions before they can cause harm to patients. Developing an understanding of the environment you are in and placement of emergency

equipment are unique opportunities that in-situ simulation offers, which cannot be replicated in the classroom environment.

The RISE program presents a unique form of in-situ simulation training and is part of a wider educational model providing simulation based education and procedural competencies in Renal medicine at the Interventional Diagnostic Nephrology Centre. This type of in-situ simulation training also has the potential to support trainees who are returning to clinical practice or have specific identified learning needs in non-technical skills and human factors.