

Regular *in situ* simulation improves participants' confidence in technical and non-technical skills required for managing a medical emergency

Authors: Tareq El Menabawey, Valerie Dimmock, Sundas Hasan, Sini John, Sam Murray and Eleanor Wood

Aims

To assess whether an embedded hospital-wide *in situ* simulation programme improves the confidence of learners in managing medical emergencies across different disciplines, specialties and grades.

Methods

Wide multidisciplinary *in situ* simulation (ISS) programme has been implemented at the Homerton Hospital since 2014 across medicine, intensive care, emergency department, paediatrics, obstetrics and endoscopy. As a simulation faculty we agreed by consensus on 10 technical and five non-technical skills considered beneficial during a medical emergency. We asked participants to rate on a five-point Likert scale how confident they felt in carrying out these skills and to disclose how many ISS sessions they had attended. Surveys were completed prior to taking part in a planned ISS. We collected surveys over a 4-month period from October 2017 to January 2018. Participants included doctors, nurses and health care assistants (HCAs). We used Microsoft Excel to calculate the Pearson's correlation coefficient for the number of times participants had attended ISS vs degree of confidence expressed in carrying out a skill. Student's t-test was used to calculate statistical significance.

Results

Forty-five participants were recruited; 20 doctors (foundation year 1 to specialty trainee year 2), 18 nurses (Bands 5 to 7) and six HCAs (Bands 2 to 4) from acute medicine, elderly medicine and endoscopy. The median number of *in situ* sessions attended was one (range 0–8). A positive correlation was found between the number of sessions attended and the participants' confidence in all of the 15 skills assessed (Table 1 and Table 2). Of these, 12 achieved statistical significance ($p < 0.05$).

Table 1. Participant confidence in technical skills

Confidence statement (technical skills)	Pearson's coefficient	p-value
I am confident in recognising an unwell patient	0.30	<0.05
I know who to call in a medical emergency	0.31	<0.05
I know when it is appropriate to escalate to a senior	0.35	<0.05
I am confident I can give a clear SBAR handover in an emergency	0.50	<0.01
I know where the drugs that may be required during an emergency are located	0.40	<0.01
I know where to obtain equipment for IV access, ABG analysis and bloods tests in an emergency	0.42	<0.01
I am confident to start initial management in a medical emergency (eg sepsis, DKA, anaphylaxis)	0.32	<0.05

ABG = arterial blood gas; DKA = diabetic ketoacidosis; IV = intravenous; SBAR = situation, background, assessment, recommendation.

Conclusion

Serial attendance at ISS correlated with improvement in confidence across a range of skills or knowledge, which are important in a medical emergency. This improvement is seen regardless of specialty, discipline and seniority. ISS improves learners' confidence scores from pre- to post-simulation but this is the first study we are aware of that demonstrates a continued improvement in confidence with repeated ISS. This would appear to validate the resources expended on embedding an ISS programme within a department or hospital. ■

Authors: Homerton University Hospital, London, UK

Table 2. Participant confidence in non-technical skills

Confidence statement (non-technical skills)	Pearson's coefficient	p-value
I would be confident to act as team leader during a medical emergency	0.37	<0.05
I feel confident identifying a role I can carry out within a team and executing that role in a medical emergency	0.53	<0.001
I am confident that I communicate clearly and make myself understood to other team members in a medical emergency	0.45	<0.01
I feel confident in allocating tasks to other team members or myself in a medical emergency	0.38	<0.01
I feel confident in challenging a clinical decision that I do not feel is correct in a medical emergency	0.42	<0.01
I have a strategy for dealing with feelings of anxiety or panic about an unwell patient or high pressure clinical situation in a medical emergency	0.46	<0.01

Conflict of interest statement

None declared.