

Archived at the Flinders Academic Commons:

<http://dspace.flinders.edu.au/dspace/>

This is the publisher's copyrighted version of this article.

The original can be found at: <http://www.racgp.org.au/afp/200404/20040413mugford.pdf>

© 2004 Australian Family Physician www.afp.org.au

Copyright to Australian Family Physician. Reproduced with permission. Permission to reproduce must be sought from the publisher, The Royal Australian College of General Practitioners.



Simulation training in emergency medicine

An important need for primary care training

Bruce Mugford, BM, BS, FRACGP, MPH&TM, is Director, Sturt Fleurieu General Practice Education and Training, South Australia.

Anne Martin, PhD, is Education Coordinator, Sturt Fleurieu General Practice Education and Training, South Australia.

Harry Owen, MB, BCh, MD, FRCA, FANZCA, is Professor in Anaesthesia and Intensive Care, and Director, Clinical Simulation Unit, Flinders University and Flinders Medical Centre, South Australia.

Twelve months of hospital training is a component of Australian general practice training. Its purpose is to provide registrars with additional clinical experience and to allow them to reflect on how hospital care may relate to general practice.¹ The challenge to providers of primary care training in this hospital period is to ensure that the skills being taught are relevant to primary care, and that registrars undertake a meaningful transition to the primary care environment.^{2,3}

Sturt Fleurieu General Practice Education and Training (SFGPET) introduced an emergency medicine course using a fully computerised human patient simulator in 2002. Human patient simulators are used to create a range of clinical scenarios for teaching purposes in several acute disciplines,^{4,5} but rarely specifically for general practice. The program was developed by experienced general practitioners in collaboration with the staff of an established simulation facility. The clinical scenarios were designed around general practice emergency situations. Debriefing sessions were primarily managed by GPs with input from specialists.

Session themes of: acute coma, cardiac emergencies, airway management, paediatric resuscitation, and trauma were selected on the basis of 'critical incident' reporting by registrars in their basic training terms,² the experience of GPs themselves,⁶ and The Royal Australian College of General Practitioners' emergency medicine curriculum.⁷

Program structure

Nine hospital based SFGPET registrars partic-

ipated in 3 hour teaching sessions at the Flinders University Clinical Simulation Unit. The simulations were videotaped and the recording was reviewed with the participants during facilitated debriefing sessions.

Program evaluation

Registrars evaluated each session with a questionnaire that measured agreement with statements about the scenario (using a 7-point Likert scale). An additional questionnaire addressed skill (self assessed) and was given to all registrars before and after the course. These skills were similar to those skills identified by GPs as being important^{6,8,9} and the scores were compared using the Wilcoxon matched pairs signed ranks test.

Results

Registrars reported high levels of satisfaction. The simulator and the unit were considered satisfactory or very satisfactory by 80% of participants, with clear or very clear scenarios (74%) and session objectives (83%). Registrars agreed or strongly agreed that the feedback sessions were valuable (91%) and well managed (91%) and in particular agreed or strongly agreed that the follow on skill sessions were valuable (96%); although only 60% agreed or strongly agreed that the simulator was realistic.

Open responses by registrars endorsed this: they reported having 'sweaty hands - must have been realistic' as well as finding the experience 'a bit nerve wracking beforehand' but also acknowledged that this was 'not necessarily a bad thing'. The feedback sessions afforded the 'opportunity to discuss

with more experienced doctors their experience'. Significant improvement in self assessed emergency medicine skills was found in most registrar scores (*Table 1*).

Discussion

The increasing sophistication of human patient simulators may provide an opportunity to begin to address primary care training deficiencies within hospitals. Our experience suggests that simulation is useful as it does not rely on clinical opportunity to learn and rehearse the skills needed in emergency situations. The central role of experienced GPs in the debriefing sessions is also important because it provides registrars with a general practice performance benchmark and introduces senior GPs as clinical role models from the time general practice training commences.

Clinical simulation is expensive and further objective assessment learning of clinical skills and competence through simulation as a means of bridging the hospital divide needs to be undertaken. Nevertheless we found a significant increase in the confidence of registrars in their emergency skills.

Implications of this study for general practice

- Computer simulations based around general practice and led by experienced GPs may overcome the deficiency in general practice exposure and training for hospital doctors.
- Computer simulations increase confidence in emergency skills for registrars.



Table 1. Summary of registrar pre-and post-test results for emergency medicine skills identified in ‘emergency medicine skill self assessment questionnaire’

Emergency medicine skill statement		Mean	Median	SD	Minimum	Maximum	p value Wilcoxon pre- and post-test comparison results
Speak calmly and effectively with patients in emergency situations	Pre	+0.8	1	+0.8	-1	2	NS
	Post	+1.4	2	+1.8	-2	3	
Develop a management plan for emergency situations	Pre	+0.1	1	+1.2	-2	1	<0.01
	Post	+1.4	2	+1.1	-1	3	
Manage an emergency situation in hospital	Pre	+0.2	1	+1.5	-2	2	<0.05
	Post	+1.7	2	+1.1	-1	3	
Manage an emergency situation in the community	Pre	-0.6	0	+1.3	-3	1	<0.01
	Post	+1.3	1	+1.0	0	3	
Recognise an emergency situation	Pre	+1.1	1	+1.5	-2	3	<0.01
	Post	+2.8	3	+0.4	2	3	
Find help in an emergency	Pre	+0.9	1	+1.3	-1	2	NS
	Post	+1.7	2	+0.9	0	3	
Do a standard endotracheal intubation	Pre	-1.0	-1	+1.8	-3	1	<0.01
	Post	+1.8	2	+1.0	0	3	
Manage a patient’s airway in an emergency situation	Pre	+0.6	1	+1.4	-2	2	<0.01
	Post	+2.3	2	+0.7	1	3	
Successfully use a laryngeal mask	Pre	-0.6	0	+1.7	-3	1	<0.01
	Post	+2.0	2	+1.1	0	3	
Insert an oral airway	Pre	+0.6	1	+1.8	-3	2	<0.01
	Post	+2.4	3	+0.7	1	3	
Assess the status of an emergency patient	Pre	+0.6	1	+1.3	-2	2	<0.05
	Post	+2.3	2	+0.7	1	3	
Mask ventilate a patient	Pre	+0.7	1	+1.5	-2	3	<0.01
	Post	+2.2	2	+0.7	1	3	
Insert an intravenous line	Pre	+2.2	2	+1.0	0	3	<0.05
	Post	+2.3	2	+0.7	1	3	
Give intravenous drugs	Pre	+2.0	2	+1.3	-1	3	<0.05
	Post	+2.7	3	+0.7	1	3	
Give intramuscular drugs	Pre	+1.9	2	+1.3	-1	3	<0.05
	Post	+2.6	3	+0.9	1	3	
Give subcutaneous drugs	Pre	+1.8	2	+1.3	-1	3	<0.05
	Post	+2.4	3	+1.1	0	3	

Conflict of interest: none declared.

References

1. Australian General Practice Training Handbook. Canberra: General Practice Education and Training, 2002.
2. Diamond M, Kamien M, Sim M, Davis J. A critical incident study of general practice trainees in their basic training term. *Med J Aust* 1995;162:321-324.
3. Sim M, Kamien M, Diamond M. From novice to proficient general practitioner: a critical incident study. *Aust Fam Physician* 1996;25(Suppl 2):59-64.

4. Weller J, Bloch M, Young S, et al. Evaluation of high fidelity patient simulator in assessment of performance of anaesthetists. *Br J Anaes* 2003;90:43-47.
5. O'Brien G, Haughton A, Flanagan B. Interns' perceptions of performance and confidence in participating in and managing simulated and cardiac arrest situations. *Med Teacher* 2001;4:389-395.
6. Tolhurst H, McMillan J, McInerney P, Bernasconi J. The emergency medicine training needs of rural general practitioners. *Aust J Rural Health* 1999;7:90-96.
7. Training Program Curriculum (Curriculum

Statement). 2nd edn. South Melbourne: Royal Australian College of General Practitioners, 1999.

8. Somers GT, Maxfield N, Drinkwater EJ. General practitioner preparedness to respond to a medical disaster. Part 1: Skills and equipment. *Aust Fam Physician* 1999;28(Suppl 1):3-9.
9. Somers GT, Maxfield N, Drinkwater EJ. General practitioner preparedness to respond to a medical disaster. Part 2: Ability and training. *Aust Fam Physician* 1999;28(Suppl 1):10-14.

AFP

Correspondence

Email: bruce.mugford@flinders.edu.au