



INTERNATIONAL JOURNAL OF CLINICAL SKILLS



A Peer Reviewed International Journal for the Advancement of Clinical Skills
- *'docendo ac discendo' - 'by teaching and learning'*



In this issue:

Emotion and concealed motivation in the clinical interview

Peripheral cannulation: what's the benefit and what's important?

Adapting clinical skills training to an Arabian Gulf setting

Role of clinical nurse educators in medical education

Simulation learning in health care

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The International Journal of Clinical Skills looks forward to contributing positively towards the training of all members of the healthcare profession.

Contents

The Executive Board Members	73
Acknowledgements	73
The Editorial Board	74
Foreword	
- Dr Abigail Boys	75

Editorials

Emotion and concealed motivation in the clinical interview	
- Philip Gaughwin	76
Adapting clinical skills training to an Arabian Gulf setting	
- Deen Mirza	81
A patient safety 'Student Selected Component' at the University of Dundee (UK)	
- Gillian Paterson	84

Original Research

Attitudes of students, staff and patients towards teaching medical students in the clinical environment	
- Alexandra Highton	88
Refresher training for junior doctors about peripheral cannulation: what's the benefit and what's important?	
- Eleanor Guegan	95
The use of the Direct Observation of Procedural Skills (DOPS) assessment tool in the clinical setting - the perceptions of students	
- Roderick McLeod	102
A 'near-peer' assisted learning approach to teaching undergraduate basic surgical skills	
- Michael Keogh	108
Development and face validation of an instrument to assess and improve clinical consultation skills	
- Janet Lefroy	115
Staff and student perceptions regarding a clinical skills laboratory learning experience	
- Shazia Ibnerasa	126
Promoting transfer of clinical skills from simulation to hospital settings: the role of clinical nurse educators in medical education	
- Robyn Hill	130
Simulation learning in health care: is there evidence of transfer to the workplace?	
- Stephen Abbott	136

IJOCs Award Winner	141
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Book Review	142
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Clinical Skills Notice Board	143
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Foreword

Clinical skills change lives...



Dr. Abigail Boys & Regina (October 2010)

Amidst the fast paced achievements in international healthcare and education, it is important not to forget what clinical skills mean in reality for our patients – clinical skills change lives.

After having initiated the charitable society Willing and Abel in 2008, many health care professionals have had the pleasure of using their specialised and expert clinical skills to help children of developing nations requiring specialist surgery. An example is 13 year old Regina who was born with a tumour fatally spreading across her face (congenital lymphangioma) – she successfully underwent major surgery at The Royal London Hospital (United Kingdom) in December 2010 and now continues to lead a normal life in Ghana, West Africa (www.bbctelevision.co.uk).

Such success exemplifies a fundamental strength of the clinical skills community in its ability to evolve and adapt to meet the challenges and expectations of a modern healthcare arena. Healthcare professionals need to have clinical skills training which will allow them to meet present and future challenges, which include an ageing population, multiple morbidities and increasing patient expectations.

There is no doubt that the International Journal of Clinical Skills provides an excellent forum for the global healthcare community to further clinical skills research, as well as advancing the training of students, academics and health professionals. I wish the International Journal of Clinical Skills continued success for its admirable work in this important field.

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Promoting transfer of clinical skills from simulation to hospital settings: the role of clinical nurse educators in medical education

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Abstract

Introduction: Gippsland Medical School (GMS) offers a four-year graduate-entry program in rural Australia. Students learn clinical skills in a simulation centre then gain clinical experience in hospitals. In the first year, students learn in simulated and hospital settings.

Clinical Nurse Educators (CNEs) were recruited to support clinical skills teaching in both settings. The aim of this innovation was to optimise students' transfer of skills from simulation to clinical settings through consistent, sensitive and supportive supervision from CNEs. This active structured role for CNEs raises their profile as medical educators, promotes collaborative learning and is cost effective.

Methods: This paper describes the evaluation of the CNE program in facilitating transfer of learning. Questionnaires and focus groups were used. Quantitative data from the questionnaires were analysed using descriptive statistics and focus group transcripts analysed thematically.

Results: Forty-eight students (response rate = 84%) and five CNEs (response rate = 71%) completed questionnaires. Twenty-eight students and all CNEs participated in focus groups. Students reported that they were able to transfer skills from simulation to hospital settings. CNEs were able to target supervision and arrange individualised learning experiences. Relationships developed in the simulation setting were crucial to learning in hospitals. CNEs valued their role and reported expansion of their clinical skills repertoire. CNEs believed as members of a clinical skills team they delivered a structured curriculum, nurtured novice medical students and facilitated the transfer of skills to clinical settings.

Discussion: CNEs can encourage students' orientation into the clinical setting, link clinical activities with those learned in simulation, support students' development of clinical communication skills and supervise and assess procedural skills in the hospital setting. Early hospital placements are a strength of this graduate entry medical program. Our results demonstrate that CNEs model communication and other professional skills thus facilitating socialisation of medical students into the hospital setting. Students' consider that their consistent engagement with CNEs enables transfer of learning. Furthermore, the students valued CNEs as academics and clinicians. Limitations of the project are outlined. We conclude that CNEs enhance the teaching and assessment process in simulation and hospital settings.

Background

Medical student education is generally the domain and responsibility of members of the medical profession. In many medical curricula students spend early years in the university setting, followed by two to three years in clinical environments. While graduate-entry medical schools are introducing clinical activity earlier in their programs, limited early orientation to the clinical setting may reduce student motivation and place them at risk of becoming 'vulnerable to negative emotions' [1].

Poorly planned induction and supervision of medical students in clinical settings can result in lack of confidence, poor professional performance, failure to achieve curriculum related clinical skills objectives and uncertainty relating to roles in the healthcare setting [2]. Simulation is widely used in medical education to support the acquisition of procedural and other key clinical skills and may provide valuable experience prior to working in real clinical settings [3, 4, 5].

Gippsland Medical School

Situated in rural Victoria (Australia), the Gippsland Medical School (GMS) was established in 2006. GMS offers a four-year graduate-entry program in which students are exposed to the clinical setting from the fifth week. Students undertake early clinical experience in local hospitals with bed capacities between 25 and 200. Students are allocated to general medical and surgical wards, and rehabilitation units.

GMS has state-of-the-art teaching and learning infrastructure including a simulation centre (clinic, ward and procedural rooms). First-year medical students initially learn clinical skills using simulation, followed by clinical experience gained in hospitals, general practices and elderly care settings. In 2008, the first cohort of medical students completed a 36-week largely campus-based year prior to commencing three years of full-time clinical education. Students spent eighteen days in the simulation centre and seventeen on clinical placement. Most students were new to learning in simulated and clinical settings and required sensitive and supportive supervision.

Rural and regional locations face different workforce challenges from their metropolitan counterparts. The shortage of rural doctors is well documented [6, 7, 8]. In implementing our curriculum we needed to source new faculty staff to deliver a high-quality program in our rural location.

Clinical Nurse Educators at GMS

GMS students have one year to prepare for three year-long attachments in clinical settings. At the beginning of the second year, students must be ready to learn continuously in hospital settings while they undertake general medicine and surgery hospital placements. In order to prepare students for the clinical years, GMS designed a series of early clinical placements. Clinical Nurse Educators (CNEs) were recruited to support first-year medical students' learning in the GMS simulation centre and hospital settings. In this study, the CNEs were recruited to facilitate transfer of learning between simulation and hospital settings providing consistency of teachers, protocols and practices.

Transfer of learning

Preparing health professionals for safe practice in the clinical environment requires transfer of theoretical knowledge into the workplace [9]. Such 'transfer' demands support for the student as they move from the classroom to the simulation centre to the real, socially contextualized, clinical workplace.

Although we are aware of nurse involvement in teaching clinical skills to medical students, we could not identify any published evaluation studies. Clinical placements are an essential component of health professional programs and provide 'opportunities for applying theoretical knowledge into practice contexts, skills development and socialisation' for students into their profession [10]. Clinical placements in the early years of medical education help medical students make learning more relevant, provide benefit to patients and potentially influence career choice [2]. The literature supports early clinical placements as educational models of situated learning [11].

The key to safe and coherent learning experiences in clinical settings is the provision of effective facilitation by skilled practitioners. Such facilitation provides a bridge between simulation and hospital settings, enabling the reinforcement of clinical skills in a congruent manner. [12].

Clinical skills course

Each fortnight all students spend two days (a total of 14 hours) on the clinical skills course. The cohort is divided into two groups who alternate weekly between the simulation centre and clinical placements in hospital settings.

The clinical skills team is comprised of eight general practitioners, seven hospital-based CNEs and an academic nurse educator. While the general practitioners have admission rights to local hospitals, they work predominantly in clinics. In contrast, the CNEs work in the hospital setting so they have intimate knowledge of the daily activities of wards. An academic nurse educator coordinates the CNEs, their student allocation and their regular engagement with the broader clinical skills team.

All members of the clinical skills team complete an induction outlining the clinical skills course, simulation-based education and supervision. In the simulation centre, the clinical skills team teaches communication, history-taking, physical examination and basic procedural skills. Weekly briefing by the Clinical Skills Coordinator ensures that each member uses teaching methods and examples consistently, including working with simulated patients and part-task trainers. Session-based teaching plans ensure consistency. These plans are forwarded to CNEs to ensure congruence with the learning in the simulation centre.

The CNEs are expected to undertake a range of roles including facilitating clinical learning, identifying appropriate clinical experiences (and patients) to enable students to develop procedural skills, and liaising with clinical staff to ensure that they understand students' clinical objectives. CNEs supervise the same students each week in hospital-based activities, provide regular feedback on performance and assess clinical skills. Finally, CNEs liaise with the clinical academic coordinator at GMS.

On alternate fortnights the students are in the hospitals for a seven-hour placement under the supervision of the CNEs. The experience gained in the simulation centre in the previous week enables the CNEs to 'prepare' the clinical learning environment for the students as it best reflects the skills taught during the fortnight.

Professional development of CNEs

The CNEs are registered nurses who work in the local hospitals on a part-time basis. Each CNE has extensive experience in teaching and assessing students of nursing, paramedic and other health professional programs. The CNEs have additional specialist qualifications in Intensive Care, Coronary Care or Emergency Nursing. Two CNEs have graduate qualifications in education.

Specific professional development sessions, strategically timed during the semester, enable the hospital-based CNEs to become familiar with the learning requirements of the GMS first-year medical students.

CNEs are expected to supervise students in the practise of medical clinical skills including joint, eye and ear examinations. General practitioner members of the clinical skills team support the CNEs to develop the skills that do not usually fall in the scope of nursing practice.

Orientation to the theoretical knowledge and practical teaching strategies in the simulation centre provides the CNEs with a firm grounding for supervising and supporting their allocated medical students, as they transfer their learning into the real clinical setting. These CNEs also assist in OSCE assessment.

Methods

Our evaluation questions asked:

1. *To what extent can CNEs link clinical ward-based activities with simulation centre teaching?*
2. *To what extent can CNEs facilitate students' orientation into the clinical setting?*
3. *In what ways can CNEs support students' development of professional communication skills?*

Questionnaires and focus groups [13] were used to address these questions. Questionnaire content was aligned with the levels of healthcare program evaluation [14] based on that developed by Kirkpatrick [15]. We produced a 43-item questionnaire for students adapted from Penman and Oliver [16]. Students were asked to complete the questionnaire in semester two.

Respondent specific focus groups were held with students and CNEs. Topic guides were constructed with input from clinical nurses and general practitioners involved in the medical students' teaching program. Students were asked the following questions (modified for CNEs):

1. *What reflections have you made in response to the clinical skills program?*
2. *What was the quality of your relationship with the CNE?*

3. *To what extent have you transferred learning from simulation to hospital settings?*
4. *What impact do you think you have had on patients in your hospital clinical placements?*

Questionnaire data was entered into SPSS 17.0 and descriptive statistics computed. Focus group data were transcribed and analysed thematically.

This research was approved by the Monash Standing Committee on Ethics Research on Humans (Reference: CF08/0906 – 2008000429).

Results

Questionnaires

Forty-eight students completed questionnaires, thereby giving a response rate of 84% (n = 57).

Table 1 lists items and the associated highest mean scores for student level of agreement, on a 5-point scale from 'not at all' (1) to 'completely' (5). For brevity, we report 20 of the 43 items representing the highest mean scores. The lowest mean score was 3.2 (SD = 1.0) suggesting that students were overall satisfied with the clinical experience. A number of items in Table 1 have particular relevance in supporting the transfer of learning from simulation to real clinical settings. These are noted with an asterisk *.

The questionnaire results indicate that students consider the role of the CNEs both important and valuable. Students considered that ready access to the CNE was a positive feature of the fortnightly placement. The CNEs' efforts to identify suitable patients for the students' interviewing and examination practice were considered to be of high quality and well designed. Feedback from health professional staff and patients were positive features of the clinical placement. Supervision by the CNEs in placements was considered by students to be of great benefit to learning and skills development.

Table 1: The highest scoring items from the questionnaire on students' experiences of clinical placements and clinical nurse educators (CNEs)

		Mean	Standard Deviation
1	The CNE was regularly available to answer my questions*	4.4	0.8
2	The clinical experience would benefit other students	4.3	1.0
3	The CNE arranged appropriate learning opportunities during my clinical placement*	4.3	0.9
4	Overall, the clinical placement was a pleasant learning experience	4.3	0.9
5	The clinical placement assisted my learning and enhanced my clinical skills*	4.2	1.0
6	The CNE identified suitable patients for me to practise my clinical skills*	4.2	0.9
7	Health professional staff in the clinical placement provided me with positive feedback	4.2	0.9
8	The placement was supportive of my professional growth	4.1	0.9
9	I received positive feedback from patients with whom I had clinical interaction	4.1	0.9
10	The staff members in the clinical placement were very willing to assist my learning*	4.0	1.2
11	I was expected by the staff at the clinical placement	4.0	1.1
12	I was provided with an orientation to the clinical placement on the first day	4.0	1.0
13	I was able to practise the clinical skills learned 'on campus' in a safe and supported manner*	4.0	1.0
14	I developed further understanding of clinical skills as I was able to perform them under the supervision of the CNE*	4.0	1.0
15	I was able to improve the performance of my skills as a result of feedback from the CNE*	4.0	1.0
16	I consider that I had a positive impact on one or more patients during their hospitalisation	4.0	1.0
17	I was provided with clear directions that enabled me to arrive at my clinical placement on time	4.0	0.9
18	As a result of my experience, I feel confident working in this venue*	4.0	0.9
19	The CNE provided opportunities for me to link theory to practice during the clinical placement*	3.9	0.9
20	I was supported to meet my objectives to my satisfaction*	3.9	0.9

Focus groups

Respondent specific focus groups were held with students (n = 28) and CNEs (n = 5). Four focus groups with students lasted 55 to 70 minutes, while one focus group with CNEs lasted 65 minutes. Key themes included the quality of the clinical skills course, professional socialisation and transfer of learning. Table 2 contains examples of verbatim statements on each theme.

Analysis revealed students' value of the clinical skills course as excellent. This is in part due to the fact that it enabled them to take on their new identity as a medical student. Learning activities in the simulation centre and hospital settings had an integrative function. Students sometimes reported being "over observed" in simulation. The CNEs were praised for their time and sensitivity especially in gaining insight into hospital culture. Hospital placements were the most enjoyable component of the curriculum for students and CNEs. Both reported learning from each other about professional roles. Educational methods were valued by students and CNEs. Students stated that they gained confidence to learn and contribute to work in hospital clinical placements. CNEs reported positive feedback from patients

and members of the health care team with whom the students interacted. CNEs requested additional training in some medical skills (e.g. physical examination).

Table 2: Student and CNE perspectives regarding key themes within the role of CNEs in medical education

Quality of the Clinical Skills Course
<p>Student: “I have had really good clinical placement experiences with the nurse educator.”</p> <p>Student: “Highlight is the tutors [CNEs]... there’s particularly two or three that explain things so well and give you so much encouragement to make you think that you can do this.”</p> <p>Student: “I loved my elderly care day [as part of the hospital placement]. I would give up my other placements to do more elderly care. I spent the whole day with a diabetes counsellor and it was great ... gave me a more community minded idea of health practice.”</p> <p>Student: “I have done hospital and general practice [placements] and really enjoyed both of them, they have been really really good.”</p> <p>Student: “[The clinical placement] really helps us, but it also helps others being able to see our weaknesses so they know that they have their own strengths.”</p> <p>CNE: “It is great that nurses are educating the doctors, particularly a simple procedure such as taking blood. Staff would say [to me] what are you doing today and I’d say teaching the doctors and they would all say oh that’s so good your doing that! And it’s nice to have it from that perspective.”</p> <p>CNE: “Program is a very full one from students’ perspective, I’ve been so blown away by how hard they are prepared to work – all putting in so much effort with regard to placement and rest of study.”</p>
Professional Socialisation
<p>Student: “[The clinical placement] is the highlight of the course; what makes it enjoyable are the people, the hands on approach and getting experience on a day to day basis.”</p> <p>Student: “It’s the one day that we look forward to. It’s the day of the fortnight where we think that ‘I’m going to be a doctor.’”</p> <p>Student: “... we learn more in that clinical environment; able to relate to each other easier.”</p> <p>Student: “Placements really helpful especially over the first 8 months. I was a bit arrogant going in. I thought that I would be able to do it better but I couldn’t and the people there were more knowledgeable than I thought.”</p> <p>CNE: “I think it has been wonderful. My students had a limited experience, because we have only a small hospital. The staff were really good; the first medical students they have had. They want to go forward and participate further. There was crossover between nursing and medical students. Quite a lot of the younger nurses would take the medical students through things like removing a drain. Patient response has been wonderful.”</p> <p>CNE: “We have broken down the doctor-nurse barrier, these young students we have got, now realise that we do have skills and we do have knowledge and we are not just there to be ordered around like some of the older doctors think. And they are quite excited that we can teach them basic skills.”</p> <p>CNE: “I found it’s been very good the way students come out on clinical placement so early. They get to learn to how to talk to people and see people in real life at a very early stage and gain exposure to a hospital environment early.”</p>
Transfer of Learning
<p>Student: “Clinical Placements going really well – good to be able to apply what you’ve learnt through the day; must know your stuff when you’re there – must motivate yourself.”</p> <p>Student: “It’s very concise on what they want you to learn and you don’t feel lost in comparison to the other themes. The overviews that they give out are fantastic. You can add on stuff as well.”</p> <p>Student: “The highlight is the tutors; they explain things so well and give you so much encouragement to make you think that you can do this.”</p> <p>CNE: “It’s great that they get immediate patient contact, it means that from the start the learn to interact with other people while practising.”</p> <p>CNE: “One of my students was struggling doing injections and both the hospital and the university were very supportive, in that I was allowed to take her out to my own practice when no other students were there and consequently she learnt well.”</p>

Discussion

Eleven of the twenty items reported in Table 1 were clearly identified as supporting transfer of learning. Our data provides strong support for the role of CNEs in facilitating learning from simulation to hospital settings. Alignment of learning between simulated and hospital settings aided transfer of clinical skills. Knowledge of individual students’ specific needs and concerns enabled the CNEs to target supervision and arrange individualised learning experiences. Clinical placements were well planned. Relationships developed in the simulated setting facilitated effective supervision. This was crucial to ensure learning in the potentially intimidating setting of the hospital. The opportunity to share hospital experiences on return to the simulation centre was valued.

The active and structured role of the CNEs raises their profile as educators in medicine and promotes collaborative learning. Although we have not completed a cost-benefit analysis, we believe the engagement of CNEs is cost effective and closed a gap in clinical learning that could not otherwise have been filled. Medical students and the CNEs benefited from the experience. Medical students developed an early understanding of the culture and professional attributes of the health care team, and achieved their learning objectives. Students reported that they were able to transfer skills.

Supervised practice by a clinical expert helped students to gain confidence and identify areas for further learning. In supporting

the delivery of a structured curriculum, CNEs are able to facilitate situated learning of communication, physical examination and basic procedural skills in a focused, safe manner. Continuity with the same group of students over an extended period enables the CNEs to provide effective and safe clinical supervision. CNEs as members of a clinical skills team delivering a structured curriculum offer unique ways to nurture novice medical students and facilitate the transfer of skills in clinical settings.

The Kirkpatrick model of training evaluation has been modified by Hammick and Freeth [14] for health professional education. This model describes five levels of evaluation:

- Level 1 – Participation
- Level 2a – Modification of attitudes or perceptions
- Level 2b – Modification of knowledge and skills
- Level 3 – Change in behaviour
- Level 4 – Change in organizational practice

We chose this interpretation of the Kirkpatrick model because it encompasses a multi-level approach to evaluation, providing feedback beyond a basic 'satisfaction' response to an intervention (Level 1).

Our evaluation strategy enabled us to evaluate the role of CNEs at Levels 1, 2a and 2b. As the medical students are still at a relatively 'novice' level of development, we are unable to make judgements about their clinical practice at Levels 3 and 4. An evaluation strategy designed at Levels 3 and above would gauge the development of the students at 'advanced' stages of practice, beyond the trainee status of our students. Further evaluations will track the students' progress in their clinical years and as new graduates.

Limitations

The study is limited by its case-study nature, being one cohort in a new medical school. The high response rate of students may not reflect representation of the whole cohort. It is possible that their demographic characteristics have biased responses. Other limitations include the absence of a control group and the relatively small sample. Self-report data may not reflect actual learning. However, when questionnaire and focus group data were analysed, the findings regarding alignment and transfer were consistent. Furthermore, all students completed their clinical skills assessments.

Conclusion

Despite the limitations, we believe our evidence at Levels 1 and 2 of the revised Kirkpatrick hierarchy points to the success of the role of CNEs in medical education. In particular, CNEs are shown to contribute to the high quality of the clinical skills course, students' professional socialisation, and they support the transfer of learning from simulation to hospital settings.

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