**Taking on the doctor role in whole-task simulation**

Abstract (247 words)

**Background**

Untimed simulated primary care consultations focusing on safe and effective clinical outcomes were first introduced into undergraduate medical education in Otago, New Zealand, in 2004.

We extended this concept and included a secondary care version for final year students. We offer students opportunities to manage entire consultations which include making and implementing clinical decisions with simulated patients (SPs). Formative feedback is given by SPs on the achievement of pre-determined outcomes and by faculty on clinical decision making, medical record keeping and case presentation.

**Methods**

We explored students’ perceptions of the sessions’ educational value using post-session questionnaires (n=194) and focus groups (n=36 participants overall).

**Results**

Students perceived that the sessions were useful, enjoyable and relevant to early post-graduate practice. They identified useful learning in time management, communication, decision making, prescribing and managing uncertainty.

Students identified gaps in their knowledge and recognized they had been offered opportunities to develop decision making skills by having to take responsibility for whole consultations and all the decisions included within them. Most students reported positive impacts on learning, though a small minority reported negative impacts on their perceptions of their ability to cope as a junior doctor.

**Discussion**

These simulated consultation sessions appear to lead to the effective learning of a range of skills which students need in order to work as junior doctors. Facilitators leading such sessions must be alert to the possibility of educational harm arising from such simulations and the need to address this during the de-brief.

**Main Paper (1509 words)**

**Background**

Simulated consultation sessions in a general practice setting focusing on safe and effective clinical outcomes (SECO) for patients were developed for use in undergraduate medical education at the University of Otago, New Zealand in 2004[1].

With agreement of colleagues at Otago, we built on their principles to extend the concept for our final year students in both primary and secondary care settings (see table 1).

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|  | Primary Care | Secondary Care |
| Session Length | 120 minutes | 90 minutes |
| Setting | Real general practice premises | Clinical Skills Centre- simulated side wards |
| In -session support | Faculty available by phone – simulated clinical colleagues | Faculty available at simulated nurses’ station |
| Tasks | Simplified typical general practice consultations | Tasks of first year junior hospital doctors |

Table 1 – features of the primary and secondary care SECO sessions

 In the primary care setting, students consult individually, use the practice’s electronic medical records system and call simulated patients (SPs) from the waiting room. Two clinicians are available by phone to simulate senior colleagues who can give advice or simulate referral-receiving staff in other services. Students must identify the role of the person from whom they need help so that it can be adopted by these clinicians. Students must frame clear questions and present cases as they would in real life, and are assessed and given feedback on this. The cases are designed to reflect typical, though simplified, consultations in general practice. Examples of the cases are shown in box 1.

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| Box 1: examples of cases in primary care* A middle aged woman has symptoms of a urinary tract infection; students must decide on an appropriate management plan.
* A woman who has recently started taking the combined oral contraceptive pill describes migraine with aura; the students must decide on a management plan which should include stopping the contraceptive pill and changing to an appropriate form of contraception.
* An elderly woman complains of a cough for more than four weeks; students must take a history to make a working diagnosis and then arrange appropriate investigations.
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In the secondary care setting, a simulated nurses’ station is staffed by a nurse educator and a postgraduate trainee doctor can provide information and support. Students can seek help from these colleagues as they would in clinical practice. To add authenticity, the nurse asks students to undertake prescribing tasks between the simulated patient cases and students must make sure they have enough information to respond to the request safely.

The tasks reflect those a recently qualified doctor in their first year after graduation would be expected to undertake in a ward setting. Examples are given in box 2.

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| Box 2: examples of cases in secondary care * A patient is worried about taking care of things at home and wishes to leave hospital very soon after abdominal surgery; the student must counsel him about the risks and if he insists on leaving complete the relevant documentation.
* A patient due for discharge falls out of bed; the student must assess the patient for injury and make a decision about further management.
* A patient with diabetes is admitted for planned surgery; the student must complete the drug card for management of the diabetes using an insulin sliding scale.
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For each case, a number of clinical outcomes are identified which are safe and effective based on current evidence. Some relate to the SPs’ experiences in the consultations and others are identified by faculty from the students’ clinical records of their interactions.

The SP outcomes are written in non- technical language from the patient’s perspective. For example, an outcome for a patient with newly diagnosed hypertension would be ‘*I am willing to take the medication prescribed today*’. Inherent in this is confirmation that a discussion has taken place about the reasons for the prescription and the risks and benefits of taking it, as well as considering the patient’s values, which would not be the case if the outcome simply stated ‘*the student gave me a prescription for blood pressure pills*’. For this same case, an outcome identified from the clinical records would be ‘*an appropriate drug was prescribed in an appropriate dose to treat the patient’s hypertension’.* SPs give feedback on the achievement of outcomes. They also identify and describe one particular strength in the consultation and one area for development, giving specific advice about what exactly needs to improve from the perspective of the patient (see box 3 for examples).

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| Box 3: Examples of SP feedback1. a strength

*‘Discussed pain relief – assured me that this would be adjusted to suit my requirements and assured that pain would be controlled after surgery’*1. an area for development

*[You could have] counselled against self-discharge…this was offered as an option when I said I was disappointed in not being discharged today…[you] did not emphasise that it wouldn’t be in my best interests….* |

There is a one hour debrief after each clinic in which the safe and effective clinical outcomes are discussed for each case. Students are encouraged to consider what might happen to patients if these outcomes are not achieved. They are offered one to one debriefs with faculty if either a student has concerns about their own performance or if supervising faculty have concerns

**Methods**

We evaluated the pilot clinics in both settings using post-session questionnaires (n=194) and focus groups (n=13 student participants in primary care and 23 in secondary care).

The focus groups were scheduled for one hour on each occasion. They were conducted by members of staff who were experienced in leading focus groups with students for evaluation of educational activities, and who were not directly involved in the design or delivery of the sessions.

The questionnaire is included in appendix 1, and the focus group topic guide in appendix 2. Ethics approval was obtained from the School’s ethics committee and consent was sought from students for data and quotes to be used in publications and presentations. Analysis was thematic and focused on the students’ perceptions of the educational value of the sessions. The themes were identified from the data, and refined in discussion. We identified the total staff costs and (for primary care) that of renting the practice’s facilities.

**Results**

In primary care, students saw between 2 and 5 cases (mean 3.5) and in secondary care between 1 and 4 cases (mean 2.2).

Students reported that they enjoyed the sessions;

*it was a really fun experience! It was unpressurised but allowed me to learn so much in such a short amount of time*

They considered that the material was relevant to foundation doctors’ clinical practice.

The most commonly described learning concerned prescribing, communication (with patients, relatives and colleagues; particularly nurses in the secondary care setting), processes around discharging patients, and time management.

The students identified useful learning regarding time management, independent working, decision making and implementation, the use of clinical guidelines in practice and the importance of record keeping. There was evidence that some students learned about managing uncertainty, particularly in the primary care setting;

*Cases are never black and white, there are always shades of grey…so it’s about judgement as well*

Taking responsibility for the whole encounter was identified in both settings as the key to learning; they had to make decisions and act on them to complete the consultation, without being able to opt out at the decision making point. As one student put it ‘*you can’t play the student card’ ,by which they meant that they could not opt out of making decisions about the patient and the management plan by deferring them to senior staff because of being a student.*

Negative comments included the reduction in authenticity arising from the lack of physical examinations as a result of consulting with SPs and a lack of ‘model answers’ in the de-briefing session. Logistical issues reported by students included patients not always being available, inconsistencies in simulated clinical records and SP roles, and problems with primary care computer systems.

***Staffing and costs:*** In both settings, sessions are staffed with three clinicians and an administrator. Two clinicians staff the phones in primary care or the nurses’ station in secondary care and assess students’ case presentations. The third does the de-briefing and all three clinicians assess students’ clinical records. The administrator briefs and directs students, and co-ordinates the sessions.

The sessions have been run for groups of five to eight students at a time and cost £150 per student in primary care and £100 per student in secondary care.

**Discussion**

Students reported that they enjoyed and valued the sessions. They perceived them to be useful formative assessments of clinical skills and good preparation for early clinical practice post-graduation. Though the sessions are resource intensive, they appear to lead to effective learning for students.

Most students reported that as a result of the SECO session they felt more prepared for work as a doctor or that they were reassured that they would be able to manage the work, but a small number reported a reduction in their perceptions that they would cope (for example, ‘*I don’t think I will cope as an F1- questioning if I am going to be able to do this as my job*’). We have interpreted comments such as these as expressions of reduced self -efficacy for the work of a doctor (self-efficacy is an individual’s belief in their ability to achieve specific mastery [2])*.* This is congruent with other work in which simulation training was shown both to increase students’ self-efficacy regarding intermediate life support and to generate anxiety and fear related to performing this skill both in simulated and real clinical environments [3]. However, we are not aware of any published work which looks at self-efficacy in simulations where students have to take individual responsibility for whole patient encounters and all the decisions they have to make within them.

Given the importance of the transition to being a doctor faced by students in the final year, it was important to address the possible reduction in self-efficacy. We did this primarily by changing the content and structure of the de-briefing session; we moved the distribution of the written feedback (provided by the SPs and faculty for the students) to the end of the session and focused the early part of the discussion on the safe and effective outcomes for the cases. The rationale for this was that students would have time to reflect on what they had done and prepare themselves for the feedback. We made the session leaders aware of the evaluation findings and asked them to be alert to students’ reactions and specifically signpost students to faculty support. The effect of the sessions on students’ self-efficacy is an area for further work. We continue to evaluate the sessions and have included changes to the topic guide for the focus groups to explore the question of potential impacts on participants regarding the transition from student to doctor.

From this work, we have concluded that students perceive the SECO sessions to have educational value. Although they are resource intensive, they are feasible to deliver for whole year groups. The potential for negative effects on students’ perceptions about their ability to work as doctors must be considered and addressed during de-briefing sessions.

**Contributions**

MB led the development and implementation of Keele’s primary care SECO sessions with input from SPG and RKM. SPG and RK led the development and implementation of the secondary care sessions with input from MB; all with the guidance of RKM. MB led the evaluation with guidance from RKM. MB and SPG undertook the data analysis. MB wrote the first draft of this paper and all authors contributed to subsequent revisions.

**Acknowledgements**

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**References**

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[2] Bandura A. Self-efficacy: toward a unifying theory of behavioural change*.* *Psychological Review.* 1977;84 (2): 191-215.

[3] Paskins Z and Peile E. Final year medical students’ views on simulation-based teaching: a comparison with the Best Evidence Medical Education Systematic Review. Medical Teacher.2010;32:569-577.

Appendix 1 – the topic guide for the focus groups

**POST SESSION FOCUS GROUPS TOPIC GUIDE – ONE HOUR**

How did it go?

Was is as you expected/what had you expected it to be like?

What were the challenges?

Any surprises?

What was best about it?

And worst?

What could be done to make it better?

What did you think about the feedback – from SPs, from the records?

What did you think about the group de-brief session?

What have you learnt?

What do you need to learn now?

What are you going to do to address any learning needs?

Appendix 2 – the post-session questionnaire

**SECO Post Session Student Feedback Questionnaire**

We hope you found the SECO session useful.

We would be grateful if you would take a few minutes to answer the feedback questions below:

Did you enjoy SECO? Yes No

 (please delete as appropriate)

Because: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Was the session useful? Yes No

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Because: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Was it as you expected?

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What were the challenges?

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Any surprises?

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What have you learnt?

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What do you need to learn now and how are you going to do it?

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Please tell us one thing that we can improve: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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