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Medical students and peer physical examination: two case studies of strategies to improve safety and increase acceptance

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Abstract

Background: Using students as their own examination models has become an accepted part of clinical skills teaching methodology; this is particularly true for early training. Consent and participation are usually implicit. However, teaching in this way raises ethical, practical and personal issues that ought to be addressed explicitly. In addition, there is the important area of abnormalities identified as part of teaching and how they are managed. Students will have a range of personal attitudes, beliefs, expectations and experiences that may influence their approach to and participation in peer examination. Some of these issues have been drawn out in survey and interview studies, identifying issues of gender, relationship and religious beliefs, amongst others.

Method: With the advent of new clinical skills courses in two different medical programs in New Zealand and Australia, some of these issues were addressed formally. Two separate approaches were developed to ensure explicit consent, ground rules, reflection and professionalism in clinical skills teaching. This paper describes the two approaches.

Conclusions: We would argue that an open, structured approach to peer examination is desirable, practical and useful. Students may not consider some of the relevant issues without prompting and open discussion also helps to address the power balance of teacher and student. This paper describes two ways of tackling the issues. Whether such an approach genuinely affects the process and experience of peer examination and future behaviour or attitudes needs to be the subject of future research.

Keywords: Undergraduate medical education, clinical skills, peer group, physical examination, informed consent

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Introduction

Peer physical examination as part of clinical skills learning in undergraduate health professional programs has arisen for a number of reasons: changes in the health care system and patient availability, the addition of skills learning earlier in the curriculum and the desire to protect patients from early learners. This development has also been promoted as having significant benefits for students but there are also potential problems that must be addressed.

This paper presents the historical perspective on peer physical examination in medical programs, discusses the advantages for students and will tackle the following specific issues:

- Are there ethical concerns that need to be addressed?
- Should we consider students as human subjects, preparing them explicitly for clinical skills teaching and requiring their consent to participate?
- Is participation as a 'patient' an important experience for students that they should not be able to opt out of?
- What anxieties do students have about taking on this role?
- Who is responsible if a student is found to have an abnormality as part of clinical skills teaching?
- What are acceptable behavioural standards and how are they maintained?

In the light of these discussions, we will describe two case studies where strategies were implemented to improve student

awareness, reflection, acceptance and safety.

A historical perspective

Student peer physical examination has probably always been part of medical education, most likely in the hidden curriculum, such as revising for examinations and to supplement patient contacts. Certainly, surface anatomy has been taught in this way in some schools for a long time (Metcalf et al 1982). However, as part of the evolution and development of medical curricula over the last decade, many schools have set up dedicated clinical skills centres. The impetus for this has come from a number of directions: the changing patterns of the patient population in secondary care (du Boulay & Medway 1999; Hoa, Estrada & Tropez-Sims 2002), more robust approaches to skills acquisition (Cox & Ewan 1982; du Boulay & Medway 1999; Hagopian et al 1982; Lawry et al 1999) and a greater concern for the role of patients in medical practice and education (Braunack-Mayer 2001; Wass 2002). There has also been a political incentive with the establishment of clinical skills centres being recommended by the Australian Medical Council (2002).

In the past, patients were seen as 'fair game' for learning. This attitude has changed and issues of consent, responsibility, equality and autonomy have become paramount (Waterbury 2001). Traditionally, medical students learnt and practised their clinical skills under supervision in a hospital but changes in the pattern of service, especially in secondary care, have reduced and limited their exposure (du Boulay & Medway 1999). The

introduction of early community-based (Howe 2002) and rural based teaching (Worley et al 2000) has partly been in response to this issue. In addition, clinicians are under greater pressure to increase patient turnover and to spend less time teaching and supervising students. There is also a collective view that patients are less willing to participate in student learning, but this is not borne out in the literature (Ching, Gates & Robertson 2000; Lynoe et al 1998).

What are the advantages of using students as their own examination models?

The major advantages are pragmatic as using students does not incur additional costs and is easy to organise. In addition, students are more likely to represent the range of normal anatomy and physiology than a patient population and normality is where students begin to learn in the biological sciences. Practising examination skills on each other means that students are familiar with using these skills before they encounter patients (Chang & Power 2000). There is also the argument that patients are protected from early learners (Bligh 1995) and that students have the opportunity to refine their skills. In taking on the role of the patient, students may learn how it feels to be examined and they are also able to give and receive feedback on their peers' and their own examination skills (Abraham 1995).

Are there ethical issues that need to be addressed?

Should we consider students as human subjects, preparing them comprehensively for clinical skills

teaching and requiring their consent to participate? It could be argued that being actively involved in skills learning has a utilitarian basis, behaviour which is for the greater good of peers and patients. But, this is too simplistic. In participating, students are making themselves available as human subjects and as such require consideration akin to patients in clinical practice or subjects in research. As clinicians, we place considerable emphasis on informed consent; a similar concern should apply to students.

Is participation as a 'patient' an important experience for students that they should not be able to opt out of?

Braunack-Mayer (2001) makes some recommendations on approaching peer physical examination and includes alternatives for those who do not wish to be a 'patient' participant. However, in this and the other papers it has not been suggested that the issue of peer physical examination be discussed with students prior to enrolment. The process of considering what peer physical examination entails and in giving consent may have benefits. In an editorial on patient consent, Ward (2000) expresses the opinion that the act of participation should give students a better understanding of what it is to be a patient. Student participation in core courses that include peer physical examination is likely to be viewed differently to participation in a tutorial.

What anxieties do students have about taking on this role?

Students appear to be generally happy to act as examination models for 'non-

sensitive' tasks; that is, excluding genital, rectal and female chest (Barnette, Kreiter & Schuldt 2000; Chang & Power 2000; O'Neill et al 1998; Rees, Bradley & McLauchlan 2004). O'Neill and colleagues (1998) looked at medical students' attitudes to peer physical examination and found 94% were happy to consider non-sensitive examination but acceptance was lower if the examination was on a student of the opposite gender. Similar results were found by Rees et al (2004) using the same survey tool. In both studies, there were a small number of students who were absolutely unwilling to participate in this type of teaching, usually for personal, cultural or religious reasons. Some other concerns were sexual harassment and the immaturity of peers. Chang and Power (2000) found that 98% of their students were willing to act as a model for physical examination, but the majority were opposed to learning genital, rectal and breast examination on each other. Barnette et al (2000) and Rees et al (2004) found that same gender examination was more acceptable. An important issue related to how well students knew each other socially, examining a 'stranger' being preferable to examining a 'friend'. Some important safeguards relating to advice on dress and draping for examination were also raised. While high levels of acceptance were noted in these four studies, 47% of senior medical students and interns surveyed in a United Arab Emirates study stated that they would not like their peers to practise physical examination on them (Das, Townsend & Hasan 1998). This perhaps highlights the issue of cultural and religious differences in the acceptance of peer physical examination. In none of these

papers, or in the relevant literature, is written informed consent considered.

Who is responsible if a student is found to have an abnormality as part of clinical skills teaching?

It is inevitable that normal variants and physiological and pathological problems will be identified as part of teaching clinical examination skills in this way. However, the incidence is likely to be low given the typical demographic profile of medical students. A study by Pols and colleagues (2003) estimated that the incidence of medical problems in their program was 1.5%. An earlier paper from the same institution (Boendermaker, Pols & Scherpbier 1999) felt that incidents were uncommon, but that teachers should have a prescribed protocol for handling any abnormality that did arise. Although teachers do not have a specific duty of medical care, the Australian Medical Council (2002) hints at the responsibility of the medical school to provide health advice and Pols, Boendermaker and Muntinghe (2003) argue that all clinicians work within the framework of 'first do no harm'. This seems to be a good principle to work to and would require teachers to have made some contingencies for such events.

Responding to the need: Two case studies

The medical schools at The University of Auckland (NZ) and Flinders University (Australia) have both recently introduced or revised early clinical skills courses. In each case, medical students were to act as their own examination models. As part of the process of designing these courses, the lead teachers specifically

tackled some of the difficult issues raised in the first part of this paper. These two medical schools have developed their courses independently and by using two distinct approaches have introduced significant changes to the way that they manage peer physical examination. These two approaches are presented as case studies.

Case Study 1: The Auckland approach

In restructuring the first three years of the six year degree, a clinical skills thread was introduced to years two and three. The aim was to provide early clinical teaching, skills learning and a parallel integrator. A small group teaching room was converted into a clinical skills resource centre and students first began using the centre in 2001 (year two students). A full program across both years was running in 2002. There are approximately 140 students in each year group and they attend the skills centre in groups of 16 to 25, for structured two hour sessions.

In designing and preparing the clinical skills program for the first cohort of third year students (2002), it was felt appropriate to talk to the Human Subjects Ethics Committee concerning one of the proposed procedural tasks; measuring blood glucose with a digital glucometer by capillary sampling. As part of the informal discussions, the committee was interested in knowing more about the program as a whole. This resulted in the decision that peer physical examination and procedure teaching placed students in the role of human subjects and therefore required formal ethical approval to be sought and given. As the program was already running, there was an agreed hiatus

where teaching could continue while the application process went forward.

At first, this felt like a heavy-handed over-reaction. However, as the requirements to submit for ethical approval encouraged discussion, reflection and a delve into the literature, it became clear that the ethics committee may have precipitated a very valuable exercise.

The outcome was a document which:

- introduces the teaching format
- discusses the ethical issues
- lists the areas of the body that will not be examined
- provides a list of statements that constitute the Participant Information Sheet (PIS) [Box 1]

In addition, there is a consent form and a reporting form for recording any significant clinical findings as part of teaching. The consent is in a generic format that can be used for medical, nursing and pharmacy students.

The difference between the requirement to participate in core teaching and the voluntary nature of agreeing to peer physical examination had to be made clear. Avoidance of coercion was an important consideration, so students are given information in verbal and written form before the first teaching session. Consent forms were made available at the first session and could be completed and returned via a drop box, internal post or by hand.

Students decide on the composition and size of the groups in which they work (it is suggested that they aim for 3 to 5 per group). In observing the dynamics

Box 1**Participant Information Sheet (PIS)****Clinical Skills: Information for Students**

1. Attendance and participation in clinical skills teaching and learning is expected. Physical examination is an important part of health professional practice and becoming proficient is central to good patient care.
2. However, taking the role of the 'examination model' in practising examination skills is voluntary.
3. Neither declining nor volunteering to take the patient role will affect the attitude of the tutor towards a student or relate to any informal or formal assessment.
4. Students taking the 'examination model' role will be treated with sensitivity and dignity — and be given the opportunity to take the examining role as well. Specifically, students are only expected to partially undress for examination and are provided with a sheet or blanket for additional privacy. Opaque screens are sited between examination plinths.
5. Students will be asked to examine bare limbs, abdomen and chest (anterior and posterior) as well as head and neck. For abdominal examination this will take the form of exposing skin from the costal margin to a line somewhere between umbilicus and pubic ramus, depending upon the comfort of the individual. For anterior chest examination this will ideally be taught using a male student. Under no circumstances will a female student remove her bra or be examined with exposed breasts.
6. Examination of the breast, genital or rectal areas will be undertaken in the CSRC using simulation models, not students as 'models'.
7. No invasive procedures will be demonstrated or practiced using students as subjects, except:
 - (a) Capillary blood sampling using an 'autolet' device (spring loaded, triggered device which holds a disposable lancet needle for superficial skin puncture)
 - (b) [Nursing students] Intramuscular, subcutaneous and intradermal injection using single use sterile needles and syringes with sterile saline
 Venepuncture and intravenous cannulation is taught using simulation models.
8. If students are asked to collect and examine blood or any body fluid, they may opt in or out. At the session where samples are taken, specific health and safety issues will be described and acted upon.
9. Cultural sensitivity to touch and place of touch is recognised for ethnic groups represented within New Zealand society. Special emphasis is given to the Maori and Pacific context in relation to avoidance of touching the head and shoulders.
10. The relationship of examiner and examined will have some features of the real clinical setting. Specifically, the process will be treated with appropriate seriousness and findings will be confidential to that group of students.
11. If clinical abnormalities are identified as part of the examination of a student, that student will be counselled by one of the tutors and a plan of action agreed. The student and tutor will then both sign an incident sheet and the student will then be responsible for taking further action.

of groups at work, students are clearly making decisions about who they work with and how they wish to work: gender, age, ethnicity and culture all seem to play a part. Some of the female students chose to have a predominantly single gender group, including a willing male to act as the examination model. All male and all female groups form, but most are heterogeneous. Mobile screens and drapes are also provided for privacy; the degree to which these are used is variable. It has been important to remind students that over the different skills sessions, those who are most willing to act as examination models also get the opportunity to examine.

New Zealand is legally a bicultural society and this has to be addressed. Some Maori people have strong views about touch and hold health beliefs that do not always ally with the medical paradigm; but this does not translate into a 'recipe' of conduct. By raising some of these issues explicitly and allowing students to discuss them in practice helps to build understanding and respect; extrapolated to all cultural groups.

The PIS (Box 1) describes very specifically which areas of the body students may be asked to expose and examine. Students often choose which roles they are willing to take and which they are not, producing a spectrum of participation under one consent. The guidelines do not discuss a dress code, but this is addressed in the course guide.

A core concern of the Ethics Committee was the identification of abnormalities or significant clinical problems. In practice, there have only been three instances where the reporting form has

been used over three years and three teaching programs (medicine, nursing and pharmacy). The process and documentation seems to work well, allowing for discussion, a recommended course of action and a signed statement by the students to accept, reject or take an alternative approach. Interestingly, a common experience has been that students often offer themselves as models if they are aware of a pre-existing problem, for example, a murmur or operation scar.

When the PIS and consent form were first used in 2003, the year two group were new to clinical skills and the year three group had one year's experience of this style of teaching. Consent forms were collected at the start of semester one. Year two consent forms came in over a few weeks and year three consent forms were largely completed at the first session. An opportunity to complete a consent form was also given in semester two. Completion rates for consent forms were: year two, 68% and year three, 90%. The difference may reflect the benefit of one year's experience in terms of what consent would entail, the style of sessions and familiarity with the tutors. It may simply reflect a different sample. Since then the consenting rates have varied between mid 60s and 90%. These rates fall within the reported speculative rates (Barnette, Kreiter & Schuldt 2000; Chang & Power 2000; Das, Townsend & Hasan 1998; O'Neill et al 1998) .

Case Study 2: The Flinders approach

The four year graduate entry medical program enrolls approximately 100 first year students, of which approximately one quarter are international students.

In 2003, with the introduction of a revised clinical skills program, a new clinical skills learning centre opened. One of the rooms was specifically set up as a four bed bay with curtains around each bed, making it easier to promote the use of these facilities for peer physical examination. Part of the revised program was to formally integrate peer physical examination into the clinical skills learning as it had only been occurring on an informal basis previously. In first and second year, students attend the Clinical Skills Learning Unit in groups of eight, for structured one hour sessions. They are then encouraged to break into smaller groups of twos or threes for peer physical examination.

The first step taken was to include a question in the entrance interview. The students were asked 'As you go through Medical School, learning physical examination requires a lot of practice - for instance, medical students practising abdominal examination on each other or listening to heart or lung sounds. This can involve relatively intimate contact. Could you see problems arising for people with this? If so, how would you cope? (or, how would you suggest dealing with this?)'.

The idea behind this was to prepare the students for the reality of peer physical examinations and to determine if there were any special considerations that would need to be taken into account, given the cultural, personal and educational diversity of the students, both from Australia and overseas.

At the beginning of first year, the students were formally introduced to peer physical examination to make them aware of the potential issues that could arise and provide them with solutions to

these problems. This program was based on suggestions from St George's Hospital Medical School in the UK.

First, students were given a rationale for peer physical examination, including the lack of willing patients in wards for the students to practise on. They were then given information on the advantages and disadvantages of peer physical examination.

Students were given scenarios describing fictitious potential problems: an example is a student with a physical condition that is potentially embarrassing (for example, stretch marks, lack of musculature or scars). During the discussion, students quickly suggested that any embarrassed student should make a group of three so that they would not need to be examined. All responded favourably to the idea that if a student did not want to be examined, others should not ask for their reasons, as these are obviously private — if they had wanted people to know, they would not be avoiding examination in the first place. Suggestions for appropriate clothing were also made. Students were given advice on how to set their own limits.

However, the largest part of the discussion centred around the scenario of the student who wished to use the peer physical examination session as a way of achieving physical contact with a fellow group member that he or she was attracted to. Ethically and legally a doctor should not have a physical or 'romantic' relationship with anyone who is their patient. The inappropriateness of the situation even for students was highlighted and students engaged in discussion about how the students should deal with this situation. Practical

suggestions, rationale, ethics and legal precedents were given.

In 2003, the introductory session consisted of a small group discussion (lasting about 30 minutes) to each of the 12 groups of eight students. In 2004 and 2005, this was converted to a whole class lecture (lasting one hour) and was jointly presented with the newly appointed ethics/law lecturer.

Our experience has been that introducing the concept at interview and then having an introductory session which was dedicated to discussing rationale, raising issues and offering solutions, led to a high level of acceptance (100% of students) of non-sensitive peer physical examination practice in teaching sessions.

Conclusions

Learning clinical skills through peer physical examination has become an accepted teaching methodology in medical curricula. For successful learning of physical examination skills, there must be supervision during the learning phase and students subsequently need to progress to refining their skills in clinical practice with patients (Cox & Ewan 1982; Gomez & Gomez 1987).

While students are learning through peer physical examination, their rights and needs should be considered and addressed formally. Students should understand what the learning experience involves, be clear about the consequences of participation and give informed consent. Peer physical examination can also be used to assist in developing appropriate behaviours for interacting with patients: respect, sensitivity, preparation and flexibility.

Finally, students need to be assured that abnormal clinical findings will be handled seriously and appropriately.

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