Teaching clinical skills by utilising community patient volunteers – a program evaluation

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Abstract

Introduction: The newly established Ipswich regional campus of the University of Queensland School of Medicine experienced difficulty in accessing inpatients for clinical skills teaching during its initial two years of operation. The community patient volunteer (CPV) program was developed to address this problem. Volunteers with significant past medical histories or clinical signs were recruited from the local community and rostered to attend tutorials on campus several times per year. Students practised history taking, physical examination and developed clinical reasoning skills, under the guidance of their clinician tutor. An evaluation of this program was undertaken.

Methods: Questionnaires were disseminated to Ipswich students and volunteers from 2010 and 2011. The surveys explored students' views of the program compared with hospital-based bedside teaching, and volunteers reflected on their participation. Student performance on Objective Structured Clinical Examinations (OSCE) was compared between the base and regional cohorts.

***Results*:** Students and volunteers reported benefits from participation in the CPV program. The results of the Ipswich students' Year 2 OSCE in 2010 and 2011 were similar to the results of the Brisbane cohort, with a significant positive difference in favour of the Ipswich students in the areas of history taking and communication skills for 2011.

Discussion & Conclusions: Student learning was not disadvantaged by the use of the CPV program and may have been enhanced. Volunteers reported personal gains from participation.

***Keywords*:** clinical skills teaching, community volunteers, volunteer patients, medical students.

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Introduction

The University of Queensland (UQ) medical program is a 4-year graduate-entry MBBS course that was introduced in 1997 to replace the traditional 6-year undergraduate program. The MBBS program follows a blended problem-based learning curriculum. The first two years of the program (Phase 1) are delivered on campus and in health facilities. The Year 1 curriculum encompasses normal structure and function, whilst Year 2 expands on this basic knowledge and into pathology. Public, community and global health, evidence-based practice, ethics and professional practice are studied in both years. A comprehensive clinical and communication skills program is delivered in Phase 1, with clinical exposure from Year 2. Years 3 and 4 (Phase 2) comprise 10 clinical rotations, including hospital-based medical and surgical specialties, mental health, general practice and rural placements.

In 2009, the Phase 1 program was launched at Ipswich, a regional city situated 35 kilometres from the main Brisbane campus. It was established in an existing UQ satellite campus and is adjacent to a regional 340-bed hospital. The inaugural cohort of 38 students commenced studies at the Ipswich campus in 2009. In 2013, the MBBS program at Ipswich was nearing capacity, with 90 Year 1 students and 78 Year 2 students on campus, and 70 Phase 2 students at the Ipswich Hospital completing the cohort.

Overview of the clinical skills program

Year 1 students learn history-taking and physical examination skills via a combination of peer examination and role-play. They learn basic procedural skills in simulation-based workshops. In Year 2, students' increase their clinical skills by exposure to "real" patients in health facilities. They develop and refine their history-taking, examination and clinical reasoning skills under the tutelage of experienced clinicians. Advanced procedural and clinical communication skills modules complete the program.

The MBBS course content and curriculum are identical at both Ipswich and Brisbane, but several site-specific problems became apparent in 2010 when planning for the implementation of the first Year 2 clinical skills program at Ipswich. Year 2 students in Brisbane were attached to one of three tertiary teaching hospitals for their bedside clinical coaching sessions and were taught by hospital-employed registrars or consultants, as part of their usual clinical duties. This model could not be implemented at Ipswich Hospital due to significant resource constraints both in terms of clinician availability and physical teaching spaces. The School of Medicine was therefore obliged to consider alternative strategies for the delivery of the program to the Ipswich cohort, and the outcome was a unique campus-based community patient volunteer (CPV) program. This program was developed and implemented in addition to obtaining limited student access to the rehabilitation ward at Ipswich Hospital for the start of the academic year in 2010. General practitioners from the local community were recruited, trained and employed to teach the students at both sites, thus avoiding additional teaching responsibilities being imposed on the hospital staff.

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Development of the community patient volunteer program

A steering committee was established in 2009, comprising representatives from local community health services and health consumers as well as the School of Medicine. This group oversaw the development of the aims of the program and its marketing to community groups. A part-time coordinator position was created with responsibility for the recruitment of volunteers, organization of a volunteer patient database, administration and day-to-day management of the program.

The aims of the program were:

- To provide a quality learning experience for the medical students
- To promote a community feel and identity for the Ipswich campus of the School of Medicine
- To involve patients in teaching the doctors who will potentially look after them in the future
- To value and celebrate a shared sense of community with the city of Ipswich.

The program was situated within the courses MEDI2021 and MEDI2022 (Clinical Practice 1 and 2), and the learning objectives of the sessions were aligned with the learning objectives of these courses.

Recruitment of volunteers was achieved through a targeted marketing campaign. An information package was distributed to local general practices and community groups, including aged-care residential facilities and service groups (e.g., Meals on Wheels), religious, sporting and social groups. Potential volunteers contacted the program coordinator, who provided them with a comprehensive information portfolio including a volunteer information booklet, consent form, session preference form and medical questionnaire. Applicant selection criteria included a current or previous medical condition (e.g., myocardial infarction, rheumatoid arthritis), ability to communicate with students and reasonable mobility to access the campus. A complete medical history was elicited by telephone interview by a clinician, and details were entered into a secure database. The only exclusion criteria required to date has been patient volunteers who do not have any medical conditions.

This program, like other similar programs, is relatively labour-intensive, requiring a 0.5 FTE co-ordinator to organize recruitment and marketing, timetabling of patient volunteers and catering, on a weekly basis. However, as expected, this cost was reduced as the program became more established. Management of the volunteer database, including the very occasional removal of unsuitable volunteers, was a shared tasked between the program and academic coordinators.

Implementation of CPV program

Two volunteer patients are rostered to attend each 2-hour clinical coaching tutorial. The sessions are facilitated by a clinician with a group of five students. The tutorials take place in purpose-built, fully-equipped medical consultation rooms on campus. Students practise focused history-taking with volunteers who recall their significant

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medical event or condition in detail, and students also practise physical examination skills on the volunteers. Throughout each session, the tutor may provide feedback, correct techniques or facilitate the development of clinical reasoning skills. Volunteers are provided with complimentary refreshments as well as taxi vouchers or gift cards following the session.

In 2010, students attended CPV tutorials once per fortnight throughout the year, with a more traditional bedside tutorial at the Ipswich Hospital on alternate weeks. From 2011 onwards, as access to Ipswich Hospital inpatients improved, students attended CPV for one 7-week clinical coaching rotation during the academic year. The remaining rotations were conducted at the hospital with external tutors teaching on inpatients.

Literature review

The teaching of clinical skills to medical students has traditionally been done at the bedside of hospitalized patients, relying heavily on their cooperation, tolerance and goodwill. Patient roles have generally been passive, often being seen as merely "interesting cases". With the emergence of a more patient-centred, holistic approach to healthcare in the late 20th and early 21st centuries, the roles of patients in medical education are changing. Roles may now include "patients-as-teachers", "patient partners", "experts in their own disease" and "health mentors", with patients assuming an increasingly active and acknowledged partnership with educators and students.

The "patient-as-teacher", "patient instructor" and "patient partner" approaches to clinical skills teaching have been utilised in medical education programs since the 1970s (Bryans & Crothers, 1979; Stillman, Sabers, & Redfield, 1976/1977; Towle et al., 2010). This approach was initially utilised for the teaching of physical examination skills. Patients with suitable medical conditions were trained to use themselves as exemplars to teach students physical examination techniques. This concept has been adopted in the paediatric curriculum, utilising "parents-as-teachers" to develop history-taking skills (Stillman et al., 1976/1977). Other examples include a training associates program, where trained professional patients provide the teaching of intimate examinations (Kretzschmar, 1978) and programs for teaching musculoskeletal examination with patient instructors who have chronic musculoskeletal conditions, e.g., arthritis (Haq, Fuller, & Dacre, 2006; Raj, Badcock, Brown, Deighton, & O'Reilly, 2006).

The concept of patients as "experts in their own disease" is another patient-centred strategy to introduce students to chronic disease and its management, and a chance to practise interviewing skills. The focus on learning concrete physical examination skills is reduced, and more emphasis is placed on observation of the bio-psycho-social model of disease. Patients-as-experts brings a unique "lived" perspective to the medical condition in question, often challenging and changing students' beliefs and attitudes about chronic illness (Kelly & Wykurz, 1998; Kent, Clarke, & Dalrymple-Smith, 1981; McKinlay, McBain, & Gray, 2009; Tracy & Iacono, 2008). For example, Towle and Godolphin (2013) described workshops for students that were designed and implemented by community educators with faculty support, in an attempt to more authentically teach "patient-centred" care.

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"Health mentors" programs have been introduced into some medical programs for a variety of reasons, including introduction to underserved populations and as interprofessional education experiences (Doucet, Andrews, Godden-Webster, Lauckner, & Nasser, 2012; Stewart & Alford, 2006; Towle & Godolphin, 2013). In this model, students typically spend time with their mentor over a period of years.

Of critical importance in the evolution of these innovative educational experiences is whether they achieve the desired educational outcomes for students. In addition, it is important to identify the effects of participation on the patients themselves. There is mounting evidence to suggest that students benefit from the active involvement of patients in their teaching, in terms of clinical skills acquisition, personal growth and professional development (Clever et al., 2011; Jha, Quinton, Bekker, & Roberts, 2009; Towle et al., 2010; Wykurz & Kelly, 2002). Students report increasing confidence in consultation skills, improved communication skills, increased respect and empathy for patients, a greater appreciation of the patient's role in managing his or her own chronic condition and development of professional identity (Jha et al., 2009; Kelly & Wykurz, 1998; Spencer et al., 2000; Stacy & Spencer, 1999; Wykurz & Kelly, 2002).

For patients, there appear to be many benefits to participation in these programs. These include improved knowledge of their medical conditions, recognition of their expertise in their own illness (Kelly & Wykurz, 1998; Stacy & Spencer, 1999), easing of social isolation (Coleman & Murray, 2002; Stacy & Spencer, 1999), the therapeutic benefit of talking (Kelly & Wykurz, 1998; Thistlethwaite & Cockayne, 2004), the ability to contribute to the education of future doctors (Coleman & Murray, 2002; Stacy & Spencer, 1999; Thistlethwaite & Cockayne, 2004), the opportunity to repay to the medical community or "giving back" (Coleman & Murray, 2002; Kelly & Wykurz, 1998; Thistlethwaite & Cockayne, 2004) and improved confidence dealing with their own doctors (Kelly & Wykurz, 1998).

Several papers discussed the potential for a negative impact on patients when they contribute to the education of students. Patients have reported feeling taken for granted or exploited by some students (Kelly & Wykurz, 1998; Stacy & Spencer, 1999). There has been concern raised about the possible psychological stress caused by reinforcing a patient's poor health status (Coleman & Murray, 2002; Jha et al., 2009), as well as patients voicing concerns about confidentiality issues (Coleman & Murray, 2002). In addition, the long-term psychological effects on patients who repeat their medical histories "on demand" for the purposes of teaching students has been flagged by several authors as deserving further investigation (Jha et al., 2009; Spencer et al., 2000; Towle et al., 2010). And whilst there is evidence of short-term educational value, there is a paucity of research evaluating these programs long-term (Jha et al., 2009).

Furthermore, the sustainability of such programs within medical curricula warrants further examination, as patient-based programs are labour-intensive and costly to maintain (Doucet et al., 2012; Jha et al., 2009; Kelly & Wykurz, 1998; Towle et al., 2010). The current reality of increasing student numbers, insufficient clinical placements, reduced patient accessibility due to shorter admission times, reduced patient cooperation and over-worked and time-poor hospital-based teaching staff has forced medical schools to reassess their established teaching formats (Jha et al., 2009). Whilst bedside teaching is still regarded as an extremely valuable educational tool, the utilization of ambulatory, community-based patients has emerged as a major strategy in medical education.

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Methods

Study design

A mixed methods research design was utilised.

Student survey

A 10-question online survey link was emailed to Ipswich Year 2 MBBS students, from 2010 (n=38) and 2011 (n=48). Six of the ten questions were statements regarding the students' experience with the CPV program, asking them to rate how strongly they agreed with each statement. Responses were rated on a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). Four open-ended qualitative questions were asked at the conclusion of the survey.

Volunteer survey

The paper-based survey contained 10 questions. Volunteers (n=84) were requested to rate how strongly they agreed with each of seven statements about their experience in the CPV program using the same 5-point Likert scale. Three open-ended qualitative questions were also included at the conclusion of the survey.

Analysis

All completed surveys (both online and paper-based) were analysed using both quantitative methods, as described, and thematic analysis, for the qualitative comments (Strauss & Corbin, 1998). The mean rating and standard deviation of each item on the survey are shown in Tables 1 and 2. The Wilcoxon signed-rank test was applied to analyse the differences in students' responses between the 2010 and 2011 cohorts. The qualitative data from the volunteers and students was thematically analysed independently by two researchers (ML, WW). The OSCE results of the 2010 and 2011 cohorts were compared using the Wilcoxon signed-rank test for categorical data, a one-way analysis of variance (ANOVA) and Tukey's post-hoc analysis for continuous data.

Ethics approval for this study was obtained from the Behavioural and Social Science Ethics Research Committee of the University of Queensland (Ethics approval number: 2011001020).

Results

The response rate from students in 2010 was 37% (14/38), 33% (16/48) for 2011. The volunteers' response rate was 51% (43/84). No demographic data were requested or obtained from the respondents.

Students' responses were analysed by year, as exposure to the CPV program was different in each year, as described above.

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Table 1
Summary of Questionnaire Results: Students

Questions*	2010 Year 2 Students Mean Scores (n=14) (Standard Deviation)	2011 Year 2 Students Mean Scores (n=16) (Standard Deviation)
The CPV patients demonstrate a broad range of medical conditions and disorders.	3.9 (1.2)	3.9 (0.8)
The experience of taking a medical history from a CPV patient is useful to my learning.	4.4 (0.9)	4.1 (0.7)
The experience of practising physical examination techniques on a CPV patient is beneficial to my learning.	4.4 (0.9)	3.6 (0.8)
The CPV program provides valuable clinical skills training opportunities.	4.2 (1.1)	3.8 (0.7)
The CPV program provides similar clinical skills learning to the other clinical rotations.	2.6 (1.2)	2.9 (0.9)
I feel more connected to the local community through exposure to the CPV program.	2.9 (1.1)	2.7 (0.8)

* Responses were rated on a 5-point Likert scale (1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree)

Both cohorts agreed that the CPV program provided valuable clinical skills training opportunities. Clinical examination, history taking and communication skills with patients were among the skills learnt from this program, and students appreciated the opportunity to see patients with a broad range of medical conditions and disorders. Overall, both groups felt that the opportunity to practise taking medical histories from patient volunteers was useful. One student commented that it is *"an excellent program as an adjunct to clinical coaching, not a stand-alone program though"*. Another noted that it was *"appropriate for second-year students in terms of difficulty of patients and depth of knowledge required"*.

However, students in the 2010 cohort noted that the program *"did not prepare us at all for seeing patients in the hospital setting in Year 3"* and that it was an *"artificial environment"*. A significant difference was noted in the students' perception of the usefulness of practising physical examination on volunteers, with the 2010 cohort finding it more useful than the 2011 cohort (Table 1, Question 3, $p<0.05$).

Regarding the differences between CPV and hospital bedside tutorials, several 2011 students felt that some patient volunteers were not as skilled at providing histories as hospital patients, since the event had usually occurred many years previously. Although, students noted that the setting was comfortable and relaxed, compared with traditional bedside teaching.

When asked whether the program offered similar learning to other parts of the clinical skills program, both cohorts were neutral, with the 2010 cohort tending to disagree. The majority of neither cohort felt more connected to the local community through

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exposure to the community patient volunteer program. Expanding the volunteer database to minimize repetition (for students) and educating the patient volunteers regarding their role in the program were the two major themes to emerge from answers to the qualitative questions.

Volunteer survey responses (Table 2) showed a high degree of satisfaction with all aspects of the program, with volunteers suggesting they were happy with the recruitment process and felt valued by the School of Medicine staff and students.

The most striking result was volunteers' perception of being of value to the medical students. One volunteer said that it was *"most satisfying to see future doctors grasp the medical information and skills"*.

Volunteers also felt that the program had been of value to them personally, with one volunteer reporting that the program *"gets us out of the house and interacting with intelligent people which I find stimulating"*. In addition, a volunteer noted, "*[I have gained] more insight into my medical problems during the discussion time"*. Volunteers also expressed that their contribution to the program was of value to the community, with a *"feeling of contributing to future medical practitioners"*. Another volunteer conveyed *"the feeling of satisfaction that I can give back to the profession that saved my life. Knowing that something beneficial can come from what I have gone through boosts me. Thanks for giving me an opportunity to give back."*

Table 2
Summary of Questionnaire Results: Patient Volunteers

Questions*	Mean Scores (n=43) (Standard Deviation)
I find the recruitment information for the community patient volunteer program easy to follow.	4.3 (0.6)
The purpose of the community patient volunteer program has been clearly explained to me.	4.4 (0.5)
I feel that being part of the community patient volunteer program has been of value to me.	4.3 (0.6)
I feel being a part of the community patient volunteer program has been of value to the medical students.	4.7 (0.5)
I feel that being a part of the community patient volunteer program has been of value to the community.	4.4 (0.6)
I feel my contribution has been valued by the medical students.	4.5 (0.6)
I feel my contribution has been valued by the University of Queensland School of Medicine staff.	4.5 (0.6)

* Responses were rated on a 5-point Likert scale (1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree)

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Very few volunteers documented negative experiences, and those they reported related to administrative procedures. In addition, volunteers requested more education about their roles within the program and suggested that follow-up sessions with students be allocated to discuss the findings from any recent medical investigation results.

Student performance in the capstone Phase 1 Objective Structured Clinical Examination (OSCE) is regarded as the barometer of the clinical skills program. It is a five-station, skills-based, oral examination, which is a culmination of the clinical skills program in the first two years of the course. Student performance has been monitored closely since the Ipswich program was launched, and the cohort performance in the 2010 OSCE was similar to the main campus cohort. However, the performance of the Ipswich cohort in the 2011 OSCE showed some early indications of differences between the cohorts in the categories of history-taking and clinical communication skills. Differences between groups were detected in the history-taking station, where Ipswich students performed better than students from two of the three Brisbane tertiary teaching hospitals employed for Phase 1 teaching ($p<0.05$ for both sites). A difference was also noted in the communication skills station, where Ipswich students performed better than students at one of the other three tertiary teaching hospitals ($p<0.05$). No other differences in performance across the three remaining stations (physical examination, clinical reasoning and procedural skills) were detected.

Discussion

The CPV program provides an example how patients can be utilised in more active roles in medical education. It was developed through sheer necessity, due to limited access to hospitalised patients in the early years of the Ipswich MBBS program. Despite resolving the access issue, the CPV program has continued to operate, as it has sound teaching and learning attributes, particularly in the teaching of the communication skills and clinical reasoning, both attributes central to clinical skills. This is the first evaluation, and these results will inform future iterations of the program.

Students recognised the value of the CPV program, particularly with respect to history-taking and communication skills. However, the 2010 cohort were more cognisant of the learning opportunity, possibly because they had little other opportunities to learn clinical skills. The 2011 students were exposed to more traditional bedside tutorials, and this may have contributed to their perception of the importance of the CPV program to their learning. Students performed at least as well as their main-campus colleagues, thereby reassuring staff that studying clinical skills at Ipswich did not disadvantage them. The program may have provided some benefit, with early indications of superior results in history-taking and clinical communication skills for the Ipswich students.

The majority of students within both cohorts agreed that this initiative did not bring them closer to the community, which was a surprising finding given that two of the aims of the program related to enhancing their sense of community. Further research into this aspect of the program is required. Based on suggestions from some students, a number of improvements have been implemented, including providing a greater scope of medical conditions and volunteer education.

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Volunteers, however, felt that they not only contributed to both the students' education and the community, but also gained personally by participating in the program. Consistent with the literature, our volunteers found that they improved their own medical knowledge, enjoyed "giving back to the medical community", appreciated the social interaction and were better able to communicate with their own doctors as a result of participation in this program. Some minor negative aspects of this form of volunteerism were mentioned in the questionnaires, but none were those identified in the literature review.

The major limitation of this evaluation was the relatively low response rate from students. In addition, the 2010 cohort was surveyed approximately one year after they had participated in the CPV program. Another limitation is that the format of clinical coaching had changed substantially between 2010 and 2011. The 2011 cohort had CPV as a stand-alone rotation for a 7-week block, whereas the 2010 cohort attended CPV on a fortnightly basis throughout the entire academic year. Thus, the 2010 cohort had approximately twice the number of CPV sessions as the 2011 students. Furthermore, OSCE evaluations can be influenced by external factors, and we acknowledge that while there were performance differences between cohorts, no causality can be implied. We report these findings to show there was no disadvantage to the students undergoing the program in Ipswich.

Conclusion

The community patient volunteer program at the Ipswich campus of the UQ School of Medicine is a valuable addition to clinical skills teaching. Students are not disadvantaged in their learning, and their participation in this program may be advantageous. In addition, volunteers report important personal gains from their involvement. These outcomes contribute to the body of evidence on this topic, and this study will form the basis of further research investigating both student and volunteer outcomes. Furthermore, this model may be useful for clinical skills acquisition for other health professionals who face similar challenges with clinical placements.

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