



Undergraduate surgical education in an ambulatory surgery setting

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Abstract

Ambulatory surgery is now well established as an effective method to treat a wide range of surgical conditions. This has resulted in many surgical cases no longer being available as teaching resources for surgical students undertaking their clinical clerkship on a surgical ward. Changes in the final year surgical curriculum at the University of Adelaide resulted in the formation of a day surgery term as a separate option for undergraduates. Educational outcome in the day surgery students, in the form of examination results, was compared with the remainder of the class. There was no difference in objective assessment between the groups. The ambulatory surgery setting offers a viable and alternative teaching environment for undergraduate surgical students. © 2001 Published by Elsevier Science B.V.

Keywords: Ambulatory surgery; Undergraduate education; Surgical clerkship

1. Introduction

Over the past 20 years, economic rationalisation of health services has placed focus on work practices with, in many cases, significant changes occurring to long established guidelines for the treatment and management of surgical conditions [1]. A prime example of altered surgical practice, has been in the emergence of ambulatory surgery as an effective method to deal with many surgical conditions that were previously thought to be only amenable to inpatient treatment. Ambulatory surgery has led to the establishment of specialised 'stand-alone' day surgery units, with equally 'specialised' staff trained in the unique needs of patients undergoing a procedure in the day surgery unit. Initial estimations that up to 50% of all surgery would eventually be performed in the ambulatory setting [2] have been surpassed in many countries and increasingly more complex cases are being attempted with same day discharge as the final aim [3].

While the transfer of many surgical cases to the day

surgery unit has led to savings in economic terms, a potential negative impact on surgical undergraduate education may have occurred. The education of senior surgical undergraduates has traditionally taken place on a surgical 'clerkship', effectively an apprenticeship in an inpatient setting. Students would be expected to be involved with the day to day activities of the surgical unit, including the clerking of patients prior to surgery. In previous years, almost without exception, patients would be admitted the day prior to surgery, thereby enabling the student to take an adequate history and perform a thorough examination. The changes in surgical practice have now resulted in even the most major cases being admitted on the morning of surgery, with minor cases now diverted to day surgery. The student undertaking their traditional surgical clerkship has little opportunity to examine common surgical conditions.

The undergraduate teaching opportunities that a day surgery unit provides has attracted attention from educational researchers [4–8]. It has been suggested that in many instances the ambulatory surgery setting is under-utilised as a source of student teaching [8]. The smooth running of the units have not been disrupted by the presence of students and many of the day surgery stakeholders feel that the units are enhanced by the students [4]. The undergraduates themselves remark

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that their surgical skills and knowledge have been improved during their time on the unit [5]. Little information is available, however, on the immediate educational outcome achieved in the ambulatory surgery setting when compared with the traditional surgical teaching venues [7]. The aim of this study is to establish an ambulatory surgery student clerkship as a surgical elective term and compare the results of the students undertaking this term with the remaining student group.

2. Method

Rotation through the day surgery unit had been possible for final year surgical students from the University of Adelaide as a 4-week component of their 8-week surgical term at The Queen Elizabeth Hospital, a major teaching hospital in Adelaide, South Australia. In 1997, the curriculum committee resolved to introduce a larger community medical education component into the undergraduate course and as a result, students would have the opportunity to select a 4-week surgical term in a field of interest to them. Subsequently terms in plastics, orthopaedics, rural surgery, ophthalmology and day surgery were devised. In addition, all students were required to complete a 4-week general surgical term in a metropolitan teaching hospital.

The students who chose to undertake a term on the day surgery unit were given an orientation session their first day and also a log book to record their clinical experiences. A list of all patients undergoing procedures for the week was made available to the students and they allocated the patients amongst themselves. Each patient was expected to be followed 'longitudinally' for their entire stay in the day surgery unit and in this way the student had the opportunity to be involved in history, examination, anaesthesia, operative procedure, recovery and discharge planning.

Subjective student assessment for the new terms consisted of the standard University of Adelaide assessment form, used for many years in the traditional clerkship and usually completed by the respective head of unit. Students were awarded one of three grades, A, B, or C for three separate clinical categories. These were the

ability to take a history and perform a clinical examination, the ability to synthesise and use clinical information, inter-personal and communication skills. For the day surgery term, this assessment was made in the presence of the student by two Department of Surgery members at a feedback session held for each student on the last day of their term. The final year written examinations and Objective Structured Clinical Examination (OSCE) remained unchanged from previous years.

3. Results

In 1998, the first year of the new final year surgical curriculum at the University of Adelaide, a total of 23 students chose to perform their elective surgical term on the day surgery unit at The Queen Elizabeth Hospital. The total class size for the 1998 sixth year group was 117 students.

In terms of subjective assessment, there were statistical differences in the grades received by the day surgery students when compared with grades obtained by the group of students who remained in city hospitals to complete their 4-week surgical elective term. Significant differences in the subjective grading assessment were also seen in the group of students who completed a rural surgical term as their surgical elective, where it was found that it was more difficult to gain the highest grade compared with their day surgery counterparts (Table 1).

Final examination assessments were collated in three categories for each student. These were the surgical exam mark, the clinical competency exam result and the overall sixth year result. When compared with the group of students who remained in the city for their surgical elective term and the group who completed their elective term in a rural centre, no statistically significant differences in any of the three categories were noted (Table 2).

A total of 20 logbooks were returned by the students and on inspection, a wide variety of cases were seen by the students ranging from gynaecology to plastic surgery with an average of 15 cases per student seen per term.

Table 1
Comparison of subjective assessments between the day surgery students and the rural surgery students

Grades	Day surgery students (<i>n</i> = 23)	Rural surgery students (<i>n</i> = 42)	<i>P</i> -value (significant <i>P</i> -value < 0.05)
Clinical category 1 A grade	23	25	
Clinical category 1 B grade	0	17	Clinical category 1 <i>P</i> -value < 0.01
Clinical category 2 A grade	23	24	
Clinical category 2 B grade	0	18	Clinical category 2 <i>P</i> -value < 0.01
Clinical category 3 A grade	23	23	
Clinical category 3 B grade	0	19	Clinical category 3 <i>P</i> -value < 0.01

Table 2
Comparison of mean scores (obtained for three objective categories) between the day surgery group of students, the rural surgery student group and the remainder of the class

Student groups	Clinical competency	Surgery exam result	Overall result
Day surgery	64.91	65.00	64.37
Rural surgery	65.21	65.00	64.71
City-based surgical elective terms	65.21	64.83	64.65

Using the Kruskal–Wallis χ^2 -square test, no significant *P*-values (where $P < 0.05$) were obtained between any of the groups.

4. Discussion

Current trends in medical education revolve around developing a more relevant and community orientated undergraduate curriculum [9]. This, in part, involves creating new surgical teaching environments outside of the traditional tertiary hospital surgical clerkship. Ambulatory surgery encapsulates many aspects of the new educational approach and along with outpatient teaching and attachments in rural hospitals represent potential learning opportunities for surgical undergraduates. Provided that the units are not overloaded with students, the smooth running of the day surgery is not compromised and it has been shown that students make a significant contribution to quality of patient care [4].

In addition to a community based focus for medical education, another change in the direction of the undergraduate curriculum is in the realisation that the end-product of the medical course should be the 'undifferentiated' practitioner [10,11]. The medical student, therefore, requires a solid grounding in the management of common surgical conditions they are likely to encounter as a general practitioner. This type of broad exposure on the increasingly specialised general surgical units in the tertiary city hospitals is difficult to achieve, however, the day surgery unit is ideally placed to provide the surgical experiences required for the primary care practitioner. Varicose veins, ganglions, skin lesions and inguinal herniaes are the types of problems which abound in general practice and the surgical management of these can only be seen in the ambulatory surgery setting. It could be argued that a term on a day surgery unit may hold more practical relevance than a corresponding period of time attached to a teaching hospital general surgical unit.

In terms of measurable educational outcome, no differences were detected between those students that undertook a day surgery unit attachment compared with the remainder of the class. Although not a 'clerkship' in the traditional sense, this finding is consistent with other studies looking at final exam results amongst students performing surgical clerkships at different locations [12,13]. An evaluation study of a day surgery unit as a teaching facility in the UK found strikingly similar results to those obtained in our study [7]. This

study concluded that the day surgery attachment prepared the student as well as other courses for their end-of-year examinations.

The educational value of the day surgery terms were on par with the other surgical elective terms on offer and given the structure of the term and emphasis on self-directed learning, the day surgery term represents an ideal environment for the practise of adult learning principles. In addition to self-directed learning, the basis of adult learning includes that adult learning efforts are problem centred and that teachers become facilitators of learning [14]. The 'longitudinal' patient exposure, although somewhat compacted when compared with the community medicine model, also embraces modern educational theory with an increased emphasis on problem based learning [15]. The long-term outcome measure of the success or otherwise of the day surgery term would involve evaluating how the graduate performs as a medical practitioner and graduate follow-up studies would be required [16].

The differences in subjective grading detected between the day surgery group and the remainder of the surgical elective group warrants some discussion. Studies have shown subjective assessments with less than four descriptors are inherently flawed due to preceptors' reluctance to award the lowest grade [17]. In the entire surgical elective group, no student received a C grading. The other factor that may play a role in the differences in assessments may be the amount of time each supervisor spent with the student. In the case of the day surgery unit, the two representatives from the Department of Surgery responsible for the subjective assessments both had fortnightly operating lists in the day surgery unit and were available to the students, if required, during working hours. The rural surgeons were in the position of having daily regular contact with the students and it could be proposed that the subjective assessments provided by the rural preceptors are a more accurate reflection of the students' progress than those assessments provided by the day surgery counterparts.

Given the fact that most tertiary hospitals now have dedicated day surgery units, opportunity exists to incorporate these units into the surgical curriculum as learning environments for surgical students and evidence

suggests that currently these facilities are being under-utilised as teaching options. The results of this study indicate that the day surgery unit can provide a broad surgical experience for the undergraduate, adheres to modern educational theory, and in terms of educational outcome is no different to other surgical elective options.

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