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Patient safety in the undergraduate curriculum: medical students’ perception

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Objective Patient safety has emerged as a distinct health care discipline and an undergraduate programme on patient safety is being introduced at the authors’ institution. The present study aimed to assess medical students’ perceptions and knowledge on patient safety issues.

Design A self-administered voluntary questionnaire survey.

Setting Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong.

Participants A total of 130 fourth-year medical students.

Main outcome measures Students’ baseline perceptions and knowledge on patient safety issues.

Results The majority of students agreed that medical errors were inevitable but over 25% opined that “competent physicians do not make errors”. The majority disapproved the practice of non-disclosure of error; whilst 6% would not address ‘near-miss’ events, and almost 10% did not support an active reporting system. Nearly half of the students were neutral on the notion that uncertainty should not be tolerated in patient care, and over 80% agreed that the most effective strategy to prevent error was “to work harder and be more careful”. A knowledge gap in patient safety issues existed. Over 80% of students supported the introduction of our new undergraduate programme.

Conclusion Medical students were aware of medical errors being an inevitable barrier between intended ‘best care’ and what was actually provided to patients. Students appeared to lack the appreciation of non-physician-based causes of errors, and the importance of a multidisciplinary approach to the management of incidents. A formal curriculum on patient safety is urgently needed in this locality, and such an initiative was supported by the medical students who were surveyed.

Introduction

In recent years, patient safety has emerged as a distinct health care discipline emphasising incident management and risk reduction strategies.1-3 The alarming numbers of patients reportedly harmed and even killed by medical errors have prompted the development of numerous trans-disciplinary, evidence-based strategies to improve patient safety.4 In Hong Kong, this change in health care culture is signified by the establishment of the Advanced Incident Reporting System and risk management task forces by the Hospital Authority.

Recent media coverage of medical incidents has not only raised considerable public concerns but also disseminated a number of arguably misguided opinions and misconceptions among health care professionals and students alike. It is increasingly recognised that undergraduate education plays a major role in the promulgation of the correct concepts, skills, and knowledge about patient safety.5,6 Medical students are now encouraged to be conversant with the principles of patient safety, and in a number of medical schools, these have already become a core component of undergraduate curricula.7-9 At the authors’ institution, a pilot programme on patient safety for third-year medical students is being introduced in the academic year 2009-2010, in collaboration with the Quality and Safety Division of the Hospital Authority Head Office. To better define and design our new programme, we have conducted, and reported herewith, the results of a questionnaire survey on our current students who have had no prior exposure to any formal teaching on the subject. We aimed at investigating the students’ knowledge
Medical undergraduate programme in patient safety: Medical students' views

**Methods**
A voluntary questionnaire survey was conducted on fourth-year medical students of the University of Hong Kong, during a whole-class orientation session in July 2009. The questionnaire was adapted from that used in a study previously reported by Madigosky et al.9

The questionnaire of the present study dealt with 25 items grouped in three sections. The 11 items in Section 1 were an assortment of statements which may or may not be consistent with the current teachings on patient safety. They were designed to assess the students' perceptions on the causes and handling of medical errors. Section 2 (6 items) focused on self-appraisal (not actual information recall) of their knowledge on patient safety issues. Section 3 (8 items) addressed attitudes towards the teaching of patient safety and their inclusion within the medical curriculum. Responses to each item were graded using a 5-point ordinal scale (1=strongly disagree/very poor, 2=disagree/poor, 3=neutral/fair, 4=agree/good, 5= strongly agree/very good).

**Results**
Of a total of 130 students, 96 completed the questionnaire, yielding a response rate of 74%. In the following summary of our findings, for ease of presentation, the term ‘majority’ was defined as ‘greater than 50% of respondents’. The term ‘supported’ was used when the respondents either ‘agreed’ or ‘strongly agreed’ with an item. The term ‘objected’ was used when the respondents either ‘disagreed’ or ‘strongly disagreeed’ with an item.

The first four ‘Attitude items’ addressed the causes of medical errors (Table 1). While the majority...
of the students supported that ‘medical errors are inevitable’ and that what is considered as ‘best care’ may not always be provided, 11% objected to the proposition that medical errors are inevitable (items 1 and 2). Over one-fourth of the students supported the notion that ‘competent physicians do not make errors’ (item 3). The majority also objected to the proposition that most errors are due to non-physician–related factors (item 4).

Items 5 to 11 addressed the management of medical errors. While the majority disapproved the practice of ‘non-disclosure’, 6% agreed that there was no need to address an error which has not harmed patients (ie ‘near-miss’ events) [items 5 and 6]. Approximately 70% of the students objected to the idea that a reporting system did not help to diminish future errors, and around 60% objected that the participation of personnel other than physicians would not help to determine the cause of error (items 7 and 8). On the other hand, nearly half of the students were neutral on the notion that physicians should not tolerate uncertainty in patient care, and over 80% supported that the most effective strategy to prevent errors is ‘to work harder and be more careful’ (items 9 and 10). The majority, however, was ‘neutral’ as to whether the culture of medicine was conducive to the constructive management of error (item 11).

Items 12 to 16 were very specific factual-recall questions. In this respect, over 70% of the students’ self-appraisal of their own knowledge was ‘poor’ or ‘very poor’ (Table 2). However, when asked to rate their own knowledge in a non-specific manner, nearly half of the students rated their own knowledge as ‘fair’ (item 17).

Over 90% of the students supported, and none objected to the notion that patient safety is an important topic for both physicians and students, and a similar proportion would like to receive further teaching on the subject (items 18-21; Table 3). With regard to the skills that the students would like to acquire, close to 90% considered it important to learn how to analyse the cause of an error, as well as skills in open disclosure (items 22-25).

**Discussion**

In recent years medical incidents have become an important educational resource, and the introduction of patient safety in the undergraduate...
The present study revealed a number of important findings, which may inform the design of our programme. While the majority regarded medical errors as inevitable, more than a fourth of the students opined that competent doctors do not make errors, which indicates a fundamental misconception about the nature and pattern of human error. The number of students who did not see the need to address a 'no-harm' error also reflects a lack of awareness of 'near-miss' events and their potential impact on service improvement. The majority's notions of effective strategies to address error prevention also suggest a lack of appreciation of the significance of system factors, process factors, and medical complexity as potential causes of errors, as well as the important roles played by other allied disciplines and health care management (eg in reporting systems). Perhaps the most interesting of all findings in our 'attitude items' was the one on culture (item 11). This item was admittedly a vague statement to which half of the responses were 'neutral'. It may be conjectured that our students are yet to become aware of a changing culture on how patient care is best provided and what constitutes constructive management of errors. A palpable need for a formal introduction on these issues was apparent.

We did not aim at testing the students' factual knowledge on patient safety. Their self-appraisal nonetheless revealed an important knowledge gap, which a structured curriculum may serve to fill. It was encouraging that the great majority regarded patient safety as an important and welcome addition to the medical curriculum. Their emphasis on root-cause analysis and open disclosure may be considered as important areas of learning in our brief programme.

The main limitation of the present study was the use of a non-standardised survey instrument and a convenient cohort of a single year of medical students. Standardised instruments for the assessment of patient safety culture are mainly catered for health care personnel such as clinicians and managers. It is hoped that similar assessment tools will be developed for medical educators. A longitudinal 'before and after' study could provide valuable insights on how best to incorporate patient safety into our mainstream curriculum in the future.

In conclusion, medical students in Hong Kong were aware of medical errors being an inevitable barrier between what is considered 'best care' and what is being actually provided. There was, however, a lack of appreciation of the multi-factorial mechanisms underlying the occurrence of errors, and the importance of a trans-disciplinary approach for their constructive management. A knowledge gap was found to exist. A formal curriculum on patient safety to bring about and sustain this change in health care culture is urgently needed and was found to be supported by the students.

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