Learning about patient safety: organizational context and culture in the education of health care professionals

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Objectives: This study investigated the formal and informal ways pre-registration students from medicine, nursing, physiotherapy and pharmacy learn about keeping patients safe. This paper gives an overview of the study and explores findings in relation to organizational context and culture.

Methods: The study employed a phased design using multiple qualitative methods. The overall approach drew on 'illuminative evaluation'. Ethical approval was obtained. Phase 1 employed a convenience sample of 13 pre-registration courses across the UK. Curriculum documents were gathered, and course directors interviewed. Phase 2 used eight case studies, two for each professional group, to develop an in-depth investigation of learning across university and practice by students and newly-qualified practitioners in relation to patient safety, and to examine the organizational culture that students and newly-qualified staff are exposed to. Analysis was iterative and ongoing throughout the study, using frameworks agreed by all researchers.

Results: Patient safety was felt to have become a higher priority for the health care system in recent years. Incident reporting was a key feature of the patient safety agenda within the organizations examined. Staff were often unclear or too busy to report. On the whole, students were not engaged and may not be aware of incident reporting schemes. They may not have access to existing systems in their organization. Most did not access employers' induction programmes. Some training sessions occasionally included students but this did not appear to be routine.

Conclusions: Action is needed to develop an efficient interface between employers and education providers to develop up-to-date curricula for patient safety.

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Introduction

Modern health care is complex, and error and mishap are common. Statistically the hazards of health care are said to be on a par with those of bungee jumping, but in absolute terms health care errors and violations result in many more lives lost each year. In the report *An Organisation with a Memory*, the authors state that when serious adverse events take place within NHS organizations, 'inquiries and incident investigations determine that the lessons must be learned, but the evidence suggests that the NHS as a whole is not good at doing so'.[1] In 2006, in *Safety First*, the authors commenting on attempts to embed a safety culture within health care, noted that 'the pace of change has been too slow'.[2]

Most mistakes are due to system rather than individual failure.[3] However, there is evidence that individuals are still concealing or under-reporting errors.[4] Leape argues that cultural change is critical: health professionals must accept that avoidable errors do occur, even when the highest standards are set.[5] To reduce error, underlying conceptual models of, and attitudes towards, error must be addressed, and a learning culture established in which there is both systematic reporting of error and continuous improvement of practice.[6] Pre- and post-registration education and training may be seen as key to developing a more safety aware culture in health care. This study investigated the formal and informal ways pre-registration students from medicine, nursing, physiotherapy and pharmacy learn about keeping patients safe from errors, mishaps and other adverse events. This paper gives an overview of the study, and explores findings in relation to organizational context and culture.

Methods

The study was designed in response to a specific tender of the NHS Patient Safety Research Programme to investigate the formal and informal ways pre-registration health profession students learn about patient safety. The design of the study reflects the academic, organizational and practice contexts in which students learn to become professionals, and assumes that 'knowledge' involves not only factual learning but its usages, professional norms, technical skills, and to act on guidelines or procedures.[7,8] To achieve this, the study employed a phased design using multiple qualitative methods. The overall approach drew on 'illuminative evaluation', where experiences and concepts are explored and described rather than measured.[9] It aimed to investigate the formal and informal ways pre-registration students learn to become safe practitioners; and to identify, describe and understand issues which impact upon teaching, learning and practising patient safety.

The sites chosen for investigation were those of the co-applicants: a convenience sample which nevertheless included 13 different programmes covering the key disciplines of medicine, nursing, pharmacy and physiotherapy (with occupational therapy students co-located in one programme). The sites reflected a wide range of historical and social environments (Table 1).

Ethical approval was obtained from Newcastle and North Tyneside Research Ethics Committee 2 (06/Q0906/97). Where necessary, each of the five sites also obtained site-specific approval from local research ethics committees, and from relevant university committees. Informed consent was obtained from all participants using information sheets to explain the project and written consent forms. All participation was voluntary.

Phase 1 employed a convenience sample of 13 preregistration courses across England and Scotland educating doctors, nurses, pharmacists and physiotherapists. A range of curriculum documents were gathered, and course directors or other curricular leads interviewed. Phase 2 used eight case studies, two for each professional group. Courses were chosen to include both traditional and innovative curricula based in both old and new universities (Table 1). The case studies aimed to develop an in-depth investigation of learning across university and practice by students and newly-qualified practitioners in relation to patient safety, and to examine the organizational culture that students and newly-qualified staff were exposed to (Figure 1). Data were gathered using observation in academic and practice contexts, focus groups with students ($n = 101$), newly-qualified staff (within two years of completing courses) ($n = 32$), patients involved in education ($n = 22$) and practitioners involved in supporting or supervising students ($n = 28$), and 16 interviews with professional and patient safety 'lead' staff within Trusts. Documentation on patient safety was also collected from organizations providing student placements. Observation, focus group and interview data were transcribed and coded independently by more than one researcher. Analysis was iterative and ongoing throughout the study, using frameworks agreed by all researchers. Organizational documents (Tables 2 and 3) were analysed to provide a snapshot of organizations' formal approach to patient safety, and develop an understanding of their ethos and philosophy. Interviews with organizational leads (Table 4) were intended to identify organizations' views of patient safety, and to gain insights into organizational culture regarding patient safety and 'cultural' influences on education and practice in this area.

Table 1 Study sites: italics show courses from which data were collected in Phase 2

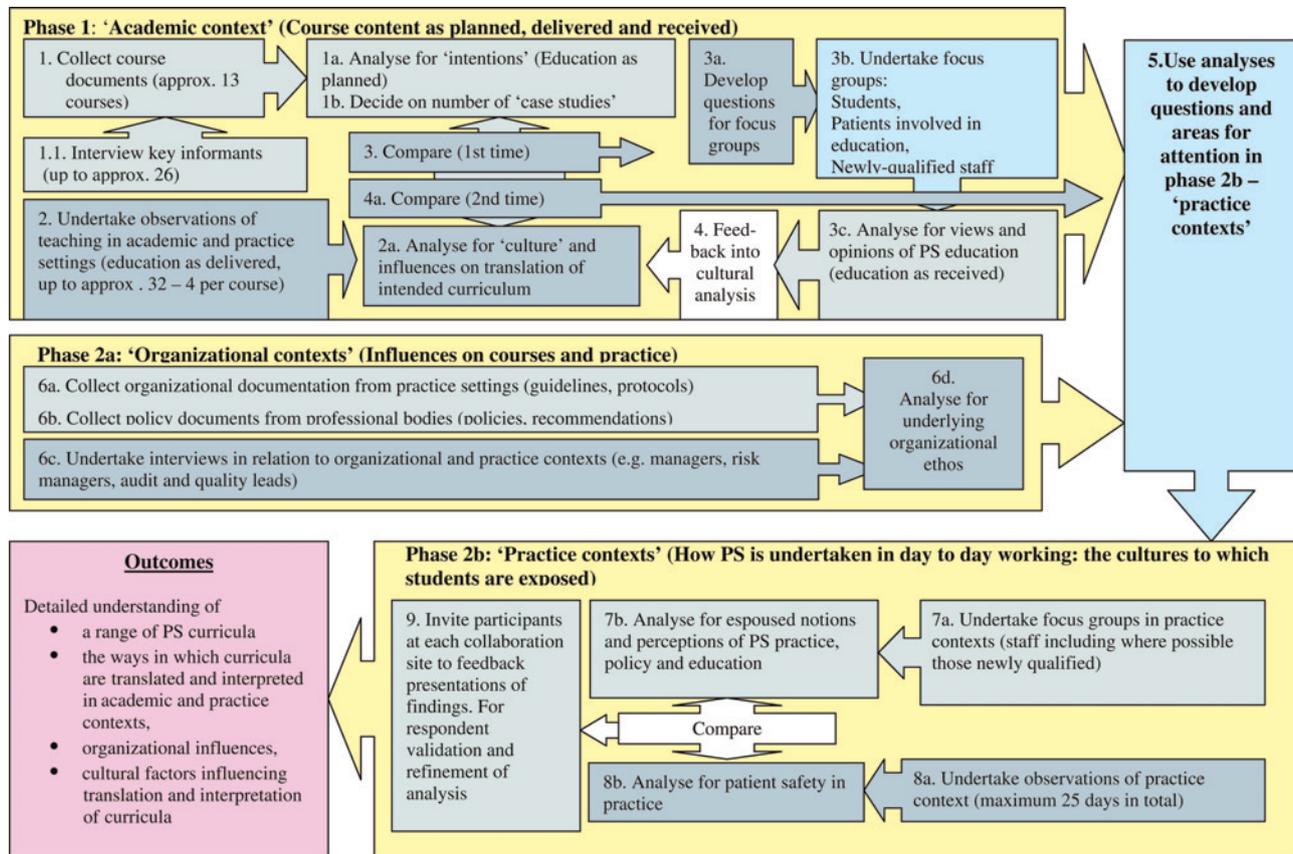| A	B	C	D	E
Old, civic university	1960–1992 universities	Old, civic university	1960 university	1960 university
NHS Hospital Board	NHS Hospital Trust	NHS Hospital Trust	NHS Hospital Trust; PCT	NHS Hospital Trust
Medicine	Medicine	Medicine	*Medicine*	
Nursing	*Nursing*			*Nursing*
	Physiotherapy		*Physiotherapy*	
	Pharmacy	*Pharmacy*		

Figure 1 Study overview

Results

This analysis focuses on the ways in which respondents reported on organizational context and culture in relation to education for patient safety, drawing in particular on interviews with professional leads and key managers, and organizational documentation from practice settings. Findings from other aspects of the study will be reported elsewhere.

The majority of students described the practice context as central for learning about patient safety.

> When you hear about it in a lecture, it's like: oh OK that's fine, you know. But when you actually pick up the needle and you go to the patient, it is like a completely different thing. It's quite helpful to get personal experience, yeah. (Year 2 medical student, Site A)

Relationships with the mentor or clinical educator were seen as critical to student learning. However, actual exposure to organizational issues appeared to be limited. All courses had some common specific content areas in relation to patient safety issues including infection control and risk assessment as well as prescribing and medication for medicine, nursing and pharmacy. Their emphasis was in producing a safe practitioner according to professional regulations. One course leader suggested that education had to be put in the context of the whole health care system in order to be effective.

Interviewees across all the sites expressed the view that patient safety had become a higher priority for the Trusts in recent years. In some sites, strong leadership within the organization (particularly Chief Executive and Board engagement) was perceived to be an important driver in raising the focus on quality and the safety agenda. A 'no-blame' culture was commonly described.

> You are actually getting more... from learning from the incident than you are from shooting somebody basically. (Int 2 Site E)

Incident-reporting policies at several sites highlighted the importance of cultivating a no-blame, learning culture, but some still failed to achieve this:

> The nurses numerically are by far the biggest group and they were the ones who were most concerned about being blamed for something going wrong. (Int 2 Site A)

However, for many respondents there was a tension between creating an open culture and performance management measures to attain a safe environment, primarily for patients. Many of the policies and

Table 2 Generic organizational documents by site

Topic	Site A	Site B	Site C	Site D	Site E
Governance	NHS ***clinical governance strategy 2005 until 2008				
Quality improvement	Guidance for NHS *** Management Teams on Quality Improvement Programmes January 2006	**** NHS Foundation Trust Whistle blowing policy	Public interest disclosure policy – whistle blowing 2006	AT – whistle blowing policy	Risk management policy and strategy 2005–2008 Policy for prevention of slips, trips and falls
Incident/accident reporting	Quarterly critical incident report for July–September 2007 with an example from the local Head and Neck section (recommended by interviewee)	Operational policy and procedure for reporting and management of accidents and incidents	Trust incident reporting policy and procedures 2006	PCT – Serious untoward incidents policy PCT – Openness policy	Serious untoward incidents and notifiable issues reporting policy and procedure Adverse incidents: reporting, investigation and learning policy and procedure
Complaints	National procedure for comments and complaints: Can I help you? Learning from comments concerns and complaints (NHS ***)	**** NHS Foundation Trust Complaints Procedure	Complaints Policy 2006		Policy for handling complaints
Induction material relevant to: Governance/Quality improvement	*** Way Induction Pack (staff induction)	Quality and clinical governance presentation used at staff induction	Induction Policy 2006	AT – staff induction policy	
Specific/suggested by interviewee	DOTS (Doctor Online Training System) overview	Manchester PS framework: reflections on the organizational culture			Being open – policy for communicating PS incidents

AT, acute trust; PCT, primary care trust

procedures examined focused more on *how* things should be done – procedures – rather than on *why* they might be necessary. For example, moving and handling policies focused primarily on 'risk' and pharmacy-related policies tended to focus on accuracy and checking.

Senior managers aligned their comments to current policy:

I suppose the first thing to say is that patient safety is absolutely top priority. (Int 1 Site D)

Web-based dissemination of information was common to all sites, with particular strategies used at each: teams (A); champions (B); newsletter (C&D); facilitators (E). Structures for patient safety appeared complex and multilayered. Hierarchical committees with risk

Table 3 Topic specific organizational documents by site

Topic	Site A	Site B	Site C	Site D	Site E
Drugs/medicines: prescribing and administration	NHS ***The safe administration of all medicines in the NHS **Primary and Community division	The **** hospitals medicines policy	Pharmaceutical care standards 2007	AT – medicines policy PCT – medicines policy	
Infection control	NHS quality improvement *** HAI 2004 (pdf), Hard copy of NHS Quality Improvement *** Draft Standards 2007	Infection control committee hand hygiene policy	Infection prevention and control 2007	AT – infection prevention and control reports 2005–2006 programme 2006–2007 PCT – Standard procedures, Hand hygiene	*
Moving and handling	Interim Manual Handling Policy for NHS *** 2007	Moving and handling policy 7	Manual Handling policy 2003	AT – manual handling policy	*
Risk assessment/management	Risk management standards NHS ***	The *** NHS trust Risk management strategy	Risk management and safety strategy 2004	AT – risk management strategy 2005 report 2005–2006	

*At this site these documents were not available on the website or through clinical tutors. The documents were repeatedly requested from Trust contacts but were not made available
AT, acute trust; PCT, primary care trust

Table 4 Organizational context interviews by participant type and site

Site	A	B	C	D	E
Participant type					
Profession specific: managers, leads, directors	Medical	Nursing Physiotherapy Pharmacy	Pharmacy	* *	Nursing
Organizational representatives with a PS remit:managers, directors, leads	Risk	Clinical governance and risk Quality assurance	Clinical governance	Risk Clinical Governance Services and complaints Quality and Clinical Governance	Risk

*Professional leads at this site declined to be interviewed

managers and well-structured reporting systems were common. However, the head of clinical governance interviewed at Site B mentioned that culture was more important than structure. In Site C the respondent talked about engaging staff but this did not emerge as a common perception. It appeared that to most of these managers structures were paramount.

Systems mentioned as utilized at all sites included incident reporting, risk assessments and staff meetings. Specific elements included audits (B, D & E); case-note review, safety notices, surveys, (A); root cause analysis (A & B); and care pathways (C). These systems may also have been in use in other Trusts but were not mentioned by interviewees. Overall systems were generally perceived as working well. Nevertheless, some respondents felt that more engagement in safety by all staff was needed:

> We need to move to a much more interactive way of distributing them [policies]. (Int 3 Site B)

There was felt to be some resistance to reporting (A, B, C, D) and perceived desire for more feedback (B, E). In some sites, medical staff were seen as less engaged in reporting (A, D & E) than in others (B & C). Interviewees appeared less confident in responses on reporting suggesting perhaps that many may have little actual contact with the 'coal face'.

Factors identified as influencing patient safety developments included: investment in additional human and technical/physical resources; patient feedback and challenge; leadership and specific people; publicity about risks; training; professions; insurance; the Department of Health; NPSA; NHS Litigation Authority or fear of litigation; learning from incidents; the Strategic Health Authority; and inspections. Inspections were highlighted by several respondents as an important driver for good practice – but not always as a positive force:

> We're inspected to bits and, um, I suspect not all of that inspection process is actually constructive – it's about passing the inspection rather than improving the patient safety, and some of it is just so, kind of, paper bound, that … you're forgetful why you are doing it! (Int 3 site B)

A majority of sites were described as using online reporting systems, although a handwritten report system was still used in some sites. Incident reporting was a key feature of the patient safety agenda within the organizations with the stated intention that learning should take place from untoward incidents to avoid repetition. Across sites, all recognized under-reporting as an issue:

> I would be dishonest if I said that every member of staff that worked for the Trust felt that the incident reporting system was a good thing because I think that some of them feel that when they report an incident it goes into a big black hole and nothing is ever done about it. (Int 1 Site D)

There were suggestions that sometimes individuals were confused as to what to report or too busy to report. There were several comments that medical staff were less likely than other staff groups to report safety incidents:

> I would say the medical staff are more cynical, I think the nursing staff and the allied health professionals are much more in tune with them and I think they feel that they're there to help them rather than hinder them but when I say the medical staff are more cynical, I think a lot of the time the medical staff think, oh here's something we've been told we have to do and they don't necessarily initially see it as something that will benefit them or the patients. (Int 3 Site D)

On the whole, students were not engaged and it was felt may not even be aware of incident reporting schemes – if they were aware, they may not have access to systems in the Trusts. They were also not routinely targeted for training about systems. Several sites were moving to be a 'paperless organization' with regard to risk management policies/procedures, reporting system online, et cetera.

> Actually, strangely enough, it tends to be senior managers and clinicians who ring in and say: 'have we got a policy on such and such?' I'll say 'yes, if you go onto the website and just key in the word you will find it'. (Int 2 Site B)

Developing approaches to effective dissemination of information about patient safety incidents was reported

as being challenging. There was a recognized need in most sites to improve feedback about safety incidents to staff.

> The problem is with all these changes to policies to do with safety is there's so much information that everybody's getting swamped. (Int Site A)

Prevailing organizational and professional cultures were perceived to be key determinants of incident reporting. The influence of concerns about infection control was obvious throughout the physical contexts (wards and surgeries) examined, with the pervasive presence of hand rubs, posters and aprons. From the observations undertaken it appeared that the majority of students followed infection control guidance.

Sites A and C questioned the value of a reporting system when used in isolation. They were pushing to introduce more detailed case-note review and use of 'trigger tools' alongside incident reporting. This was largely driven by the need for more detailed understanding of the root causes of failure and 'making the data from incident reporting schemes more meaningful'. Training on how to conduct root cause analysis was being rolled out across sites. The target groups were generally senior staff members (often identified as 'safety champions' within the organization). There were some suggestions that sites might include more junior staff in future, but they foresaw problems with the time required. Across the sites, there was a major push to encourage a more systems-based approach to understanding error. Risk assessment was seen as a key activity across the sites leading to the development of local and organizational risk registers. Training in risk assessment was again largely targeted at more senior personnel. A further key factor in moving patient safety forward noted at Site B was how much authority and leadership senior staff exercised, at ward or department level:

> ...the senior people in the clinical environment – that's the consultant, it's the ward sister, it's the matron, it's the senior physio – whoever it happens to be, but it's about them having ownership and leadership... authority to address some of the issues...(Int 1 Site B)

Induction training programmes for new staff members were provided across all sites. Interviews referred to a variety of topics being covered, including raising awareness of Trust policies, procedures and guidelines, moving and handling, infection control, risk management and incident reporting. There was then often specific training geared to the areas in which staff were to work and this might be followed by ongoing training. There was a suggestion that engagement of staff with ongoing (Trust-led) training while in post may be more problematic:

> They're supposed to be mandatory, but they're still difficult to get people to go on them. Unless you've just started in which case you have to go on it, but once you've been there for X number of years, you know, people find other things to do. (Int 2 Site B)

Some sites were thinking about different approaches to the delivery of training, notably site A with the development of e-learning packages on risk assessment, incident reporting, root cause analysis and working with information systems. Students were generally not engaged with the corporate induction programme, and there were suggestions that they were likely to be unaware of some of the systems and policies in place.

> No I wouldn't have thought they would have shown them [students] the risk register. I wouldn't have necessarily have thought they would have shown them in that instance the incident reporting book. I would have hoped they would have had the conversation with a member of staff to say if something happens that you're not sure of please come and tell me about it and then they would have gone through it. To be honest I don't know whether they [students] get access to this as part of their attachment. But there wouldn't be any problem with them saying to a member of the qualified team on the ward: 'can I see that?' and actually the qualified staff would point them in that direction. (Int 3 Site D)

There was evidence of attempts to engage medical students with the risk management team at Site C, but this did not appear to be common across the sites. Elsewhere, some training sessions had occasionally included some students, but this did not appear to be routine activity:

> I also – again because of my personal history – do a session on what I call 'defensible documentation' – it's basically about quality documentation, and I've trained several hundred staff on that subject including student nurses. (Int 2 Site B)

Looking to the future, there were some suggestions that respondents would like to see training more focused on service improvement:

> I think in the ideal world I would like to be able to describe to you a situation where that training is about service improvement. So the training we'd be delivering is the sort of training that changes practice and changes behaviours... (Int 1 Site B)

One site expressed interest in getting staff trained in 'lean process engineering'. Others also suggested that learning was possible from industry, particularly focusing on communication strategies. The precise roles, experience and status that managers have appears to have been significant in the responses that they give – some have more of an overview of the whole organization's structures and some have a much more limited understanding. However taken together they do give some indication of Trust approaches and the similarities and differences between them.

Discussion

This paper draws on data from a limited number of NHS organizations and individuals. The aspiration of organizations for staff to feel safe to report errors appeared challenging at several of the study sites. Students across all disciplines did not always have access to policies and guidelines, and felt they could be made more aware of Trusts' approaches to risk assessment. Moves to electronic access for staff appeared to have created particular barriers for students. However, these may be overcome when the 'N3-Janet Gateway' (http://www.nhs-he.org.uk/n3-janet-gateway.html) is fully operational. In general, patient safety leads in organizations and supporting documentation were oriented to staff rather than students, and few addressed the specific needs of transient attenders at their site. The assumption appeared to be that students were either acting as employees and would receive the general staff 'package', or were not the responsibility of the Trusts. While this is technically true, the needs of novices who are new or acting as temporary staff do not seem to be included in the organizational culture. Nor do managers and universities have any direct interface around curricula for key policy areas or NHS approaches to patient safety. Topics such as infection control are clearly informed by NHS needs and policy. Cultural and organizational approaches such as error reporting are less explicit. In addition, there was relatively little sophistication in the discussion of methods of education that would lead to behavioural change, and little sense of how organizational leads might contribute to better early training that might enhance the culture of patient safety in their newly-qualified practitioners.

Recommendations for change include the development of closer links between academic staff in universities and NHS Trust managers in each Strategic Health Authority around patient safety to ensure clarity about policy trends, desired areas of competence for students at qualification and to work towards an appropriate balance of learning between university and practice settings. While these suggestions are not new[10] and *should* be good practice in relation to curriculum development, based on our findings they are still not in widespread use.

Conclusions

Interviewees across all sites said that patient safety had become a higher priority for their Trusts in recent years. Incident reporting was a key feature of the patient safety agenda within the organizations examined. Some staff were, however, confused about mechanisms for reporting, or too busy to report; others were not wholly convinced of the value of reporting to driving forward actual improvements in care. On the whole, students were not involved with organizational safety strategies during their pre-registration placements, and many did not appear aware of incident reporting schemes. If they were aware, they often did not have access to systems in the Trusts. Students also appeared not to be generally engaged with Trust corporate induction programmes. Some Trust training sessions occasionally include students, but this did not appear to be routine. Work is therefore needed to create and sustain an effective interface between NHS Trusts and education providers for the development of up-to-date curricula for patient safety.

Acknowledgements

References

1   DoH. *An Organisation with a Memory*. London: The Stationery Office, 2000
2   DoH. *Safety First – A Report for Patients, Clinicians and Healthcare Managers*. London: The Stationery Office, 2006
3   Reason J. Understanding adverse events: human factors. *Quality in Health Care* 1995;**4**:80–9
4   Firth Cozens J, Redfern N, Moss F. Confronting errors in patient care: the experience of doctors and nurses. *Clinical Risk* 2004;**10**:184–90
5   Leape L. Error in medicine. *JAMA* 1994;**272**:1851–68
6   Lester H, Tritter JQ. Medical error: a discussion of the medical construction of error and suggestions for reforms of medical education to decrease error. *Medical Education* 2001;**35**:855–61
7   Eraut M. *Developing Professional Knowledge and Competence*. London: Falmer Press, 1994
8   Eraut M. Non-formal learning and tacit knowledge in professional work. *Br J Educational Psychology* 2000;**70**:113–36
9   Parlett M, Hamilton D. Evaluation as illumination: A new approach to the study of innovatory programs. In: Hamilton D, Jenkins D, MacDonald B, King C, Parlett M, eds. *Beyond the Numbers Game*. London: Macmillan, 1977
10 Institute of Medicine. *Health Professions Education: A Bridge to Quality*. Washington, DC: Institute of Medicine, 2003