Medical education

Finding safety in medical education

D P Stevens

The doctor-patient and teacher-learner relationships remain at the core of the rapidly changing practice of medicine. Medical education must embrace a safety culture if these relationships are to serve patients well.

> *"What gives value to travel is fear. It is the fact that, at a certain moment, when we are so far from our own country . . . we are seized by a vague fear, and an instinctive desire to go back to the protection of old habits*." Albert Camus[1]

The doctor-patient relationship has been at the core of medicine for centuries. However, the last decade of the 20th century has seen radical accelerating change in the context in which that relationship is embedded. It is increasingly complex and hurried[2] and, disturbingly, it is fraught with substantial risk to the patient.[3]

Similarly, the teacher-learner relationship exists at the core of medical education, which must wrestle with the same accelerating change. While the focus on patient safety gains increasing attention in the clinical setting, it is slow to gain strategic awareness among medical educators. Were it of biological origin, the discovery of an epidemic that results in 44 000–98 000 deaths annually in the US alone[3] would quickly find its way to the formal medical curriculum, for changes in biology and technology (particularly of such magnitude) are readily incorporated by medical faculties. Patient safety pushes medical education into unfamiliar territory. Complex systems,[4] culture,[5] and teamwork[6] are not mainstream topics in the traditional curriculum. So, where do we start?

In this issue of *QSHC* Aron and Headrick[7] set out an excellent proposal by offering a systems metaphor for discerning safety in medical education. They argue persuasively that the "organizational defences" of the medical education system fail, and the result is inadequate education for doctors to provide safe care. Students and, importantly, their future patients are at risk. The authors focus strategically on important elements of medical education that include entrance requirements, curriculum, organizational culture, assessment, and accreditation. The list is daunting but on target and highly strategic. All the same, the strategy might benefit from further reflection on deep seated trends that envelop medical practice and, inevitably, contemporary medical graduates.

THE EVOLVING DOCTOR-PATIENT AND TEACHER-LEARNER RELATIONSHIPS

Consider the relentless transformation that occurs in two essential bonds in health care and medical education—the doctor-patient and the teacher-learner relationships.

The traditional doctor-patient relationship is frequently amended by the imperative for doctors to collaborate more effectively with each other and with other health professionals. What has traditionally been a "one to one" bond for the patient now may require effective integration with a "one to many" relationship. Another element that has dramatically altered the interaction between doctors and patients is the Internet. There was a time when medical knowledge was a principal source of authority for the doctor.[8] Now both the patient and doctor have access to the same information. The doctor is now responsible for integrating and customizing information for the benefit of the patient. While professional authority still plays an important role in how the doctor provides counsel, the ubiquity of information brings about a substantial realignment. There exists little formal education for dealing with these inevitable modifications of the doctor-patient relationship.

The teacher-learner relationship is also evolving. Leach[9] suggests that the studies of Hubert and Stuart Dreyfus provide a valuable insight into how doctors learn. Working in the 1970s, the Dreyfus brothers studied how pilots acquire knowledge and skills.[10] They described five progressive stages in the continuum of learning: novice, advanced beginner, competent, proficient, and expert. The novice learns by careful application of a defined set of rules. The advanced beginner demonstrates greater skill by applying those rules to new unforeseen situations. As learners acquire expertise, learning sheds rule bound behavior and becomes more intuitive. The Dreyfus model can be readily applied to the continuum of medical education. The process begins when medical students move from novice to advanced beginner during their medical school experiences. Trainees in graduate medical education progress to acquire competence, and expertise resides with the senior teaching faculty.[9]

The emergence of new knowledge, however, drives constant and dynamic reorientation of the teacher-learner relationship along the continuum. In the traditional teacher-learner relationship, senior (expert) doctors impart knowledge to (novice and advanced beginner) students and (increasingly competent) graduate trainees. That having been said, most would concede that expertise in information technology currently resides with the student and trainee, while the senior doctor is the novice. When it comes to patient safety, all learners along the continuum from medical student to teaching faculty are novices. In medicine, rapidly accumulating new knowledge increasingly merges the traditional roles of teacher and learner.

IMPORTANCE OF A "SAFETY CULTURE" IN MEDICAL EDUCATION

By addressing the importance of establishing a "safety culture" in medical education, Aron and Headrick[7] have focused on a fundamental and strategic issue. In this regard there is much to learn from the study of cultural realignment in other complex high risk organizations. For example, in their efforts to discern organizational models for safe systems Weick and Sutcliffe[11] have investigated the culture of so called "high reliability organizations" (HROs) such as US Navy aircraft carriers and nuclear power plants, and have extended their observations to describe lessons for healthcare systems.

It may be informative to extrapolate such lessons one step further to examples in systems for medical education. Weick and Sutcliffe[11] point out that HROs adopt a culture that centers on *mindfulness and constant attention to failures*. An example for medical education might be morbidity and mortality conferences that relentlessly explore the root causes of failure in recent care events. HROs readily *adapt organizational structure temporarily* to meet unusual situations—for example, the student who teaches the teacher how to use the most recent computer software for electronic order entry. Finally, HROs are constantly *mindful of the unexpected* and exploit such events for organizational learning—for example, timely bedside teaching and learning that focus in depth (perhaps even celebrate as a learning opportunity) a trainee's near miss in the care of a patient.

Weick and Sutcliffe[11] refer to reliability as a "dynamic non-event". Expressed another way, when adverse events are prevented, nothing happens. An educational tradition that places greater

emphasis on disease treatment than on illness prevention is slow to reward doctors and students when the "dynamic non-event" of patient safety happens.

Davidoff has suggested that one additional cultural barrier to improvement in the healthcare system is shame because " . . . improvement means that, however good your performance has been, it is not as good as it could be".[5] By extension, educators who have devoted their careers to educational systems that were historically successful, but now are insufficient, must embrace the need for valid improvement if knowledge for safety is to find its way to their students.

"Improving health and health care begins with the focus on improving medical education"

Finally, effective and safe clinical systems require leaders who are relentlessly committed to safety and reliability.[4 11] This requirement may necessitate new criteria for educational institutions in the recruitment and promotion of their organizational leadership.

Aron and Headrick serve patients well with their proposal that medical educators should radically rethink systems for preparing future doctors.[7] Improving health and health care begins with the focus on improving medical education. Strategic improvement—based on adoption of a systems approach, reflection on the realigned doctor-patient and teacher-learner relationships, transformed culture, and strong leadership—provides the appropriate start. The pace of change in medicine and health care insists on a measure of urgency. Patients rightfully trust the profession to educate doctors to incorporate such change into their care. Finding safety in medical education can provide reassuring confirmation of that trust.

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Quality improvement research

Quality improvement research: understanding the science of change in health care

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Essential for all who want to improve health care.

Expectations of healthcare services are ever increasing and those delivering care no longer hold the monopoly of opinion on what constitutes good or best care. To earn the label "good enough", care must meet standards expected by consumers as well those of expert providers. Headlines in newspapers, statements in policy documents, and many analyses, surveys and reports repeatedly highlight serious problems in healthcare delivery related to underuse, overuse, or misuse of care.[1] Health systems are sometimes unsafe and frequently we harm patients who have trusted us with their care. There is an endemic failure to engage patients with decisions about their care. We know there are problems; we just need to change so that care can be made safer and better.

Everyone—authorities, policy makers, and professionals—seems to accept the need for change. New initiatives aiming to cure our ailing systems come in droves. This is an international phenomenon. Many initiatives are linked to programmes that capture a particular approach—for example, evidence based medicine; accreditation and (external) accountability; total quality management; professional development and revalidation; risk management and error prevention; organisational development and leadership enhancement; disease management and managed care; complex adaptive systems; and patient empowerment. They may differ in perspective. Some focus on changing professionals, others on changing organisations or interactions between parts of the system; some emphasise self-regulation, others external control and incentives; some advocate "bottom up" and others "top down" methods. Despite their differences, however, each aims to contribute to better patient care—and they might, but the evidence for understanding their likely impact is not robust and many seem based more on belief than rigorous research of value, efficacy, or feasibility.[2] From what we know, no quality improvement programme is superior and real sustainable improvement might require implementation of some aspects of several approaches—perhaps together, perhaps consecutively. We just do not know which to use, when to use them, or what to expect.

More evidence and understanding is required. At least 40 good systematic reviews and numerous controlled trials are available,[3 4] but many of the trials can be criticised because, for example, randomisation or analysis was conducted at the patient level while the intervention focused on professionals or teams, and outcome parameters are often poorly chosen or are difficult to compare. Most studies were conducted in the USA, limiting generalisations to other systems. Some strategies are better studied than others. We know more