

Editorial

Medical Education Changes Should Be Evidence Based

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The University of Kuwait Medical School retains traditional clinical teaching methods with clinical examinations. They appear to me, as a visiting examiner, to be of the highest standard. The local co-examiners have, of course, taught the students, set the examinations and set the standards for success. As successful as is the present system, there is, or will be, increasing pressure for change.

Pressure for change

Sometimes the need for change is obvious. American medical schools at the end of the 19th century varied greatly. Abraham Flexner visited no less than 167 medical schools in North America, and studied the methods of training in a number of European countries. He admired the German university-based system and his 1910 report^[1] to the Carnegie Foundation profoundly influenced medical training in the United States of America. Since his re-organization there have been continual changes in the education of medical students, not always brought about in response to improving standards but from the influence of other forces. Three powerful drivers of change can be identified. There are financial pressures to reduce costs of training since time spent teaching medical students removes clinicians from contributing to the clinical workload. There is increasing resistance of patients to submit to exposure and examination except by those responsible for treating them, and in many places, increasing challenges to clinicians over treatment, often associated with litigation. There is, or will be, within all societies, increasing regulation of our responsibilities towards others regarding respect for their personal human rights, including privacy and dignity.

In all fields of activity, as new methods are introduced they are often accepted uncritically as better, simply because they are new. This phenomenon is well known in the treatment of disease; Sir

William Withey Gull (1816-1890) physician to Guy's Hospital, London, famously stated, 'Make haste and use all new remedies before they lose their effectiveness'. Treatments can be compared by first narrowing differences between groups, excluding all who do not fit within narrow limits, then treating each group differently. By comparing the groups regarding success or failure of treatment, survival or death, the best treatment can usually be demonstrated.

The same critical standards should be applied to new methods of teaching and assessing medical students. It is, however, difficult to compare outcomes following different methods of training and assessment, because outcome results from medical teaching and assessment courses are not clear-cut. How does one compare success of a highly specialized academic working in a well-supported major center with that of an isolated generalist practising in a deprived community? Prestigious medical schools take pride in producing the first type - 'high-flyers', but a larger number of people benefit from access to the second practitioner.

Examinations dominate curriculum

Modular methods of training have been adopted enthusiastically because they are highly structured. Courses are divided into units, each intended to teach an aptitude or transmit a component of knowledge which can be objectively assessed for each component - a 'module'. The way in which components are combined in clinical practice is, however, complex and plays a vital function in the successful application of the knowledge or aptitude. The Gestalt psychologists of Germany emphasized that you cannot judge the whole by merely looking at the parts - and the only way to judge medical practice is to see it performed, and audit the results, in the clinic, at the

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bedside, and in the treatment theatre. A particularly worrying educational trend is to favour modular content that can be objectively assessed, thus often excluding the subtler but vital aspects of medical training often acquired unconsciously during master/apprentice contact. Unconsciously acquired knowledge and skills that cannot be objectively assessed are too often rejected as 'subjective, probably biased, and cynically described as 'teachers trying to create clones of themselves'".

In order to make assessment of candidates objectively comparable, it is necessary to exclude all subjective tests. In the United States of America clinical oral bedside examinations were abandoned in 1964 and the current US Medical Licensing Examination (USMLE) is carried out in three steps; apart from computer-based case simulations in step 3, the testing is by a variety of multiple choice examinations (MCQ)^[2]. In clinical practice the physician has to generate the diagnosis and the treatment decision; in examinations by various MCQs the candidate is supplied with the answers and merely needs to eliminate the incorrect ones.

It is inevitable that the arguments for increasingly structured teaching and objectivity in assessments of candidates will drive out methods of training and examination that are subjective. In some cases objectivity is more apparent than real. Some subjective analogue judgements by the candidates or the examiners are awarded on a numerical scale and are thereafter treated as though they are statistically valid. A British writer and broadcaster, Malcolm Muggeridge, famously stated, 'The credence which western man accords to any numerate answer would be the envy of any African witchdoctor'.

Students demand, and the teachers are urged to provide, instruction that enables their students to pass examinations. Their efforts should be directed at producing good doctors, not good examination candidates - and they are not the same.

Access to patients is being reduced in most Western countries as a result of changes within society. Traditionally, trainees were encouraged to perform a complete examination on every patient but in western countries they are increasingly permitted to examine only the affected part or system and any other system that could have a bearing on treatment. In consequence they do not unconsciously acquire a vital knowledge of the range of normality and so will in future be unable to dismiss a patient's anxiety and confidently state that all is well without ordering investigations. Unnecessary and often expensive and even harmful investigations may be a means of throwing responsibility upon someone else. Investigations are often operator-dependent and interpretation is

another opinion, not an absolute diagnosis.

Increasingly, clinical skills are initially taught in 'Skills laboratories', using simulations. This is a valuable introduction and spares patients from trainees who are performing for their first attempt. Because it is carried out in a classroom, the teaching can be structured to cover the subject in a relaxed atmosphere. The danger is, however, that this aid to clinical instruction is replacing real contact with patients.

Subjective information is vital

The relationship between clinicians and patients is intensely subjective. A doctor unconsciously takes into account the patient's gender, age, appearance, behaviour, speech, tone of voice, and interprets what is said and found in the light of the initial judgement, modifying it as new evidence is revealed. The process of interpreting the findings and offering treatment plan demands sensitivity to the patient's reactions as each statement is made, so that an explanation or a reassurance can be given, or an alternative plan can be suggested.

Most human inter-relationships are not based solely on rationality. Successful medical practitioners often cannot identify the reasons for their success, or they may attribute it incorrectly. In areas where practical skills are necessary, surgeons, for example, frequently claim that a particular manoeuvre they have developed accounts for their good results - it is sometimes obvious that it is their outstanding decision-making and sedulous search for perfection that is responsible. This is borne out by the fact that others who use the manoeuvre do not get comparable results, while colleagues who use other methods but are equally talented and careful, are equally successful.

The practice of medicine is not an explicit science that can be transmitted by words or numbers in the same way as mathematics and physics are sciences. Success depends on how the science is applied and this is tacit (Latin *tacere* = to be silent), best transmitted by example from master to apprentice. The polymath Polanyi stated that 'By watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself'^[3].

Nevertheless, theoreticians continue to believe that it is possible to provide future doctors with 'routines' such as problem-solving strategies and they reject the subtle and often subjective tacit learning acquired by experiential learning gained 'on the job'^[4]. It will be interesting to see how successful are the methods being adopted in some of the new medical schools in Britain and

elsewhere; clinical contact starts almost from the first day. Anatomy is not taught on cadavers and many traditional methods are changed as in the Peninsula Medical School in South West of England^[6]. Only by allowing enthusiasts to test their theories, can we decide what is best. What we must resist is being pushed into accepting that medicine can be taught by simulations, computer-driven tests, formal modular factual feeding and tested and assessed by MCQs.

Teachers were formerly given a great deal of latitude, allowed to teach in a manner in which they felt comfortable. Formal structured training methods increasingly constrict them into set forms of teaching which limit their non-verbal communication with the audience. Moreover, as groups of trainees move through the steps, the teachers are at risk of finding themselves repeating a course of instruction without variation, time after time, thus dulling their enthusiasm and desire to pass on their passion for the subject.

The present accessibility of facts using computers makes it less important to test ability to recall information, allowing us to focus on the subtleties of decision-making, the ability to recognize minor incongruities, and the instinctive empathy with patients, since we belatedly now accept that the patient's trust, and satisfaction with the outcome, depends heavily on the rapport with his or her clinician. We must reject the present demands for exclusive emphasis on objectivity while almost totally excluding subjectivity. The possession of five qualities, each beginning with the letter 'C,' none of which is capable of being

objectively assessed, is far more valuable than encyclopedic knowledge; they are commonsense, competence, commitment, compassion and communication. We cannot afford to ignore them. It suffices to recognize them, even though we have no units of measurement for them.

CONCLUSION

As calls are made for changes in medical training and practice, we must demand from those who propose the changes, the same standards of evidence that we as clinicians demand of each other when we propose a new treatment. We should be clear what are the justifications provided for innovations, and how were they arrived at.

As we watch the outcomes and incorporate beneficial methods we should not lightly abandon the tried and tested methods still valued in Kuwait - training on patients, assessed on patients.

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