Medical Education

Selection of Medical Students Admission and Selection Policy

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ABSTRACT
In many aspects of human endeavor great achievers enter their chosen field with an innate ability that enables them to out perform their peers who have a similar education or training. Medical educators, perhaps vainly pay a lot of attention to the design of the curriculum and little to a selection of the students. This has posed the question "Can we select better medical students"? Surely we can and we should. The 1990's have seen marked changes in pedagogy towards a 'learner – centered and problem oriented' approach, strongly linked to changes in student selection. This article will explore the process of selection of medical students and will attempt to evaluate their success. (Rawal Med J 2007;32:193-196).

BASIC PRINCIPLES
The Shifa College of Medicine (SCM) admitted its first under graduate cohort in September 1999. It is possible to debate that if the right candidates are selected, the majority will become good doctors regardless or even in spite of what they are subjected to in their under graduate program. SCM wants to develop the best and the fairest selection process possible. To work towards this outcome SCM would need to initially draw upon some basic principles.

Principle 1:   Use of criterion-based selection methods

Graduate-entry medical programs (GMP's) raise the issue of how to fairly select students from a range of academic and personal backgrounds. Academic success is assumed to imply cognitive ability, well developed study techniques and the motivation and opportunity to study. However, it may not indicate how the student will perform in a tertiary institution or their motivation to study medicine, and hence has been associated with a high attrition rate when used as the major selection criteria.[1,2] The application of criteria-based selection is open to bias and error. Instruments and processes must at minimum be transparent and defendable.

Principle 2:   Allow the purpose of the selection process to determine the instruments used

Assuming the particular attributes or criterion can be measured or assessed, the purpose of the selection process should determine the instrument to be used. Having a 'mix of instruments', as often suggested by quality assessment processes, is totally inappropriate if the instruments used are not fit for purpose. The important question is: 'Will the instrument provide the answers you require?'

 Principle 3: Evaluate the performance of selection activities

In the same way that assessment activities are evaluated for their quality, the performance of selection processes and their instruments need to be evaluated. Most important quality measure of selection activities is the utility of the activity. Van der Vleutan described this as U=RXVXAXEXC, where utility is a product of an activity's reliability, validity,

acceptability, educational impact and cost effectiveness.[2] Whilst validating processes against local external guidelines such as those produced by the PMDC provides some quality measures. Psychometric assessment of selection activities performance provides essential rigor to this process. Selection into medical college can be viewed as a high stakes assessment and thus reliability should figure strongly in the utility equation.

Principle 4: Measure the performance of the selection process for its social accountability

Medicine has been criticized for failing to demonstrate diversity in the backgrounds of candidates it accepts into its programs. SCM is focusing particularly on students who are socio economically and/or geographically disadvantaged. Special admission schemes would aim to alter the demographic composition of the medical profession by promoting the selection of students from some particular socio economic, ethnic or geographical faction. This would involve affirmative action program designed to redress inequities from the past or to produce a professional group whose composition more closely reflects the social group for which they are to going to care.

SELECTION CRITERIA AND INSTRUMENTS
Academic ability
The threshold or minimum academic prerequisite for admission has been suggested a level closer to result of two B's and a C at A level, rather than the traditional two A's and a B.[3] However, evidence from the psychology literature supports good predictive validity of IQ level (i.e aptitude) for success in a complex profession.[4,5] Although it is problematic in what A level performance (i.e attainment) actually measures, A level grades are used in the UK.[6] Whilst conscious of these uncertainties and concerns SCM has sought evidence of academic ability from its applicants via the traditional A level results in science subjects. SCM would be keen to examine a candidate's most recent academic performance and not penalize a candidate for past poor performances and will assess academic aptitude by performance in the Graduate Medical School Admissions Test (GAMSAT).[7]

The GAMSAT, modeled on the American Medical College Admission Test has been developed by the Australian Council for Educational Research Limited. This provides a level playing field for the selection of candidates from varied backgrounds. The GAMSAT is a three section written test spanning five and a half hour and is designed to measure the applicants basic science knowledge as well as their general skills in problem solving, critical thinking and writing. The GAMSAT has been designed particularly for medical school admissions and has demonstrated high utility in the Australian Medical Schools, which are currently using this assessment.[7]

Non academic attributes
The desirable attributes that demonstrate suitability for a career in medicine are often described as the non academic criteria for selection of medical students. SCM would attempt to inform its choice of attributes from evidence from the psychology literature on the characteristics of a stable adult,[8,9] but also, importantly, from patient expectations of doctors.[10] Attributes/criteria that SCM would highlight as desirable for a career in medicine are several (table 1).

Table 1. Attributes suited to a career in medicine.

Attributes	Score range
1. Communication skills	0-3
2. Empathy and pro social behavior	0-3
3. Flexibility	0-3
4. Decision making	0-3
5. Insight into team work	0-3
6. Honesty	0-3
7. Reflective manner	0-3
8. Insight about self	0-3
9. Insight about illness and medicine	0-3
10. Insight about stress management	0-3
11. Global performance *"Would you want this candidate to be your doctor?"* Maximum score	0-5 35

In order to be consistent with best and increasingly common practice[11,12], we can look towards a new instrument designed by the Peninsula Medical School, UK which is a structured interview to assess these attributes. Whilst further research is needed on the factors impacting on the effectiveness of interviews, such as interviewer training, systematic bias and interviewer background, interviews has been shown to provide important additional predictive information.[13]

The 20- minute structured interview

Structured interview provide higher internal consistency than unstructured interviews, often at the cost of reduced face validity and interviewer boredom. The 20-minute structured interview is based around an ethical scenario. Each candidate has only one interview and chooses from three pre-read scenarios. The scenarios serve as a prompt for the interview and prior knowledge of the scenarios is not considered an important factor in a candidate's performance. Whilst the scenarios are different, the nine questions asked arising from each scenario are very similar. The actual answers to the specific questions are not individually scored. Instead, mini global judgments of the desired attributes are made, based on the candidate's entire interview performance. A numeric and qualitative scoring system has been devised and suggested. In addition, consistent with increasing evidence of the high reliability of global scores made by trained assessors,[14] a global score is also included. Importantly, standard setting is performed using a modified Angoff approach[15] and a minimum competence level is determined prior to the interviews. Interviewers have no prior knowledge of the candidates, except for their names and the fact that they have already achieved the required academic threshold.   All candidates who meet the academic threshold are interviewed.

Broad representation on interview panels can be sort from medically trained professionals (50%), allied health care professionals (20%), other academics (18%) and informed community members (12%). This model can allow SCM to avoid considering personal statements and references at all in the selection process, except for information about the predictive academic grades.   Whilst team work skills are essential prerequisites for the effective functioning of a health care team, these skills are also necessary for the effective use of a problem based learning curriculum.[16]

TOMORROW'S DOCTORS

In its mission to innovate and be relevant, SCM has to develop selection and admission processes that aim for best practice. Like an evolving curriculum, processes for selecting medical students in the fairest and most valid way must be constantly evaluated. Debate continues over the value of personality test and new instruments are currently being trained overseas and at a number of UK centers. Validation data from these trials are eagerly awaited. Part of this debate hinges around the deepest question of which qualities and attitudes can be learnt and, therefore, whether a personality assessment at the time is needed. We need to develop instruments today that will be valid for a doctor practicing in the year 2020. The criteria and instruments we use must be fit for the purpose.

References

1   Marley J, Carman I. Selecting medical students: a case report of the need for change. Med Educ 1999; 33:455-9

2   van der Vleuton C. A Paradigm Shift in Education: How to Proceed with Assessment? Paper given at 9th International Ottawa Conference on Medical Education. March 2000

3   Powis DA, Rolfe I. Selection and Performance of medical students at Newcastle, New South Wales. Educ Health 1998;11:15-23

4   Schmidt FL, Hunter JE. Individual differences in productivity; and empirical test of estimates derived from studies of selection procedure utility. J Appl Psychol 1983;124:262-74

5   Hunter JE, Hunter RF. Validity and utility of alternative predictors of job performance. Psychol Bull 1984;96:72-98

6   Mcmanus IC, Richards P. Prospective study of medical students during pre clinical years. BMJ 1986;293:124-7

7   Australian Council for Educational Research (ACER). Graduate Australian Medical School Admission Test 2001: Report Camberwell, Victoria. ACER 2001

8   Mc Cranie EW, Brandsma JM. Personality antecedents of burnout among middle-aged physicians. Behav Med 1988;14:30-6

9   Valliant GE, Sobowale NC, Mcarthur C. Some psychological vulnerabilities of physicians. N Eng J Med 1972;287:372-5

10 Greengross S. What patients want from their doctors? In: Allen I, Brown P, Hughes P, eds. Choosing Tomorrow's Doctors London: Policy Studies Institute 1997

11 Madaniel MA, Whetzel DL, Schmidt FL, Mauer SD. The validity of employment interviews: a comprehensive review and meta-analysis J Appl Psychol 1994; 79-599-616

12 Powis DA, Waring TC, Bristow T, O' Connell DL. The structured interview as a tool for predicting premature withdrawal from medical school. ANZ J Med 1992;22(6);692-8

13 Ferguson E, James D, Madeley L. Factors associated with success in medical school: systematic review of the literature. BMJ 2002;324:952-7

14 Rothman AI, Cohen R. A comparison of empirically-and rationally-defined standards for clinical skills checklist. Acad Med 1996;71(suppl):s1-s3

15 Angoff WA. Scales, norms and equivalent scores. In: Thorndike RL, ed. Educational Measurements. Washington, District of Columbia: American Council on Education 1971

16 Woods DR. Problem Based Learning: How to Gain the Most from PBL. 1st edn. Ontario: Waterdown 1994