AMA

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Medical Education in Australia – What makes for success in medical education?

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Introduction

Given the high level of responsibility doctors have in ensuring the health of the community, medical school places should be allocated through a rigorous selection process. This process should be based on the academic merit of the individual applicant, with other methods of selection being used to measure those attributes that are not reflected in academic scores, to differentiate high performing students and to ensure that there is congruency between selected students and the objectives of the medical school.

Selection criteria for medical school must be set according to the desired attributes and behaviours of a medical student and practitioner. These selection criteria need to be pre-determined, clearly articulated and constant to provide an objective reference point for decision-making throughout the selection process. Universities need to be very clear about what it is they are trying to assess in candidates. This needs to be balanced with the need to ensure that there is diversity in the medical student population.

Medical schools need to be able to demonstrate that their selection processes are free of bias, are equitable and set according to the objectives of the medical program. They must be able to demonstrate that the methods they use in selecting students are appropriate for the purpose.

The selection methods used by medical schools should be supported by evidence, that is, the methods employed actually assess the desired knowledge, skills and attributes and are accurate predictors of good medical school outcomes. Their ability to accurately predict good outcomes - successful students who go on to practise medicine safely, effectively and professionally - should be regularly evaluated and the process amended accordingly. There is a relative lack of published research on selection methods used by medical schools in Australia and there is a need for further research in this area.

Components of the selection process must be granted the appropriate weighting when used to determine an applicant's overall ranking. The weighting should be calculated with consideration of the strengths and limitations of the various selection methods in terms of their ability to predict future performance. For example, high school academic marks reflect longer term academic performance, whereas it could be argued that interviews measure performance in other areas on one particular day. High school marks that reflect academic ability, however, do not reflect communication skills and ability to empathise. These factors need to be balanced when medical schools determine and review their selection process. This is necessary to ensure that there is fair consideration of applicants and a high degree of accuracy in selecting applicants who are most likely to achieve the desired outcomes of the medical school program.

Diversity is important. It is appropriate that there is some variation among the selection criteria and methods employed across medical schools and independence for the individual medical schools to determine their own selection processes. This is necessary, for example, to select the students who are most likely to succeed in the new medical curricula (self-directed, problem-based learning). It allows for selection from a wider pool of applicants and within appropriate benchmarks can be used to achieve social objectives such as greater representation from rural students. Variation of selection processes, just like variation of medical school curricula content and delivery, ensures that there is adequate diversity in our medical school graduate cohorts to meet the future health care needs of our society.

Universities have progressively modified their selection processes. At most medical schools the selection process now consists of a combination of past academic performance, psychometric test scores and performance at an interview. This is appropriate.

Academic Performance

Universities use past academic performance as a benchmark, however, what differs is where that benchmark is set and what role this plays in selection. In the medical schools of the University of Newcastle and until recently the University of Adelaide, academic performance only provide a means of entry into the pool of applicants. After that point, past academic performance is disregarded and final selection is determined by other methods. Once the academic benchmark has been met (or in anticipation of it being met), these universities use the psychometric test scores as a 'sieve' that determines which applicants progress to the interview stage. The interview is then used to determine final ranking. In this regard, the pendulum appears to have swung too far. For example, there is no opportunity for an "on the day" deficiency in a particular area to be balanced against outstanding performance in another.

Past academic performance has been shown to predict future performance in medical school and postgraduate careers (McManus, 2003; Blackman & Darmawan, 2004). High academic performance requires traits that are aligned with desired medical student attributes including achievement, motivation and commitment.

It is recognised that past academic performance may not reflect other important attributes like the candidate's ability to communicate with others, empathise, reason dynamically and their desire to pursue a career in medicine. Increasingly society is expecting more of doctors in terms of interpersonal and communication skills and doctors need to be equipped to meet these expectations. Also, diversity between medical school selection processes is appropriate because variation in modes of selection results in variations in the attributes of students, resulting in a more diverse medical workforce better able to meet society's needs and expectations. Additional selection criteria and assessment tools are needed in response to these factors.

But ultimately we need extremely bright and talented students entering medical schools and completing the courses. The validity of past academic performance as a predictor of future academic performance is well recognised. Academic results should play a key role in the final selection decision.

The medical schools of the University of New South Wales and the University of Western Australia explicitly state that equal weighting is given to the three selection components of academic results, psychometric test scores and interview. At least equal weight should be given to past academic performance in every selection process.

Psychometric testing

Psychometric testing (UMAT for undergraduate entry and the GAMSAT for graduate entry) is now widely used as a selection tool for entry into Australian medical schools. While the tests do offer a useful means of ranking large numbers of applicants who all have high academic results, there appears to be little available evidence that these tests are actually reliable methods of predicting future performance in medical school and as independent medical practitioners.

The AMA has opposed the use of psychometric tests for selection into postgraduate training programs on the grounds that they had not been properly validated for the purposes of the particular selection process being undertaken. While psychometric testing has its place, especially in large scale screening, its use in any circumstances should be validated against at least the following terms:

1. The test's reliability must be determined with regard to the range of individual differences exhibited by the group to which the test will be applied for selection purposes;
2. The content measured by the test must be relevant to future performance;
3. The test must adequately predict future performance - the predictive ability of the different domains assessed by the tests must be validated as predictors of future performance;
4. Accurate performance data must be used in establishing the test's predictive validity.

There have also been concerns raised with regard to the reliability of the tests, that is *'the consistency of scores obtained by the same persons when re-examined with the same test on different occasions, or with different sets of equivalent items, or under other variable examining conditions'* (Anastasi 1988, p 109). There are reports of medical school candidates performing very well on these tests on their second attempt after failing their first attempt. This has frustrated students who do not score satisfactorily on their first attempt and therefore do not progress to interview stage. The following year however, they perform very well on the test and are offered interviews at numerous universities.

While much may have been done to validate UMAT and GAMSAT for their specific purposes, this is not readily apparent to an observer or user of the selection process. This gives rise to doubts about the validity and worth of the tests.

Interview

We have discussed above the importance of diversity and the need for additional selection criteria and assessment tools beyond past academic performance, though that should continue to be a key factor in the selection process. A particular issue is society's demand that doctors have more than just academic proficiency; they must also have communication skills. An interview is one of the means for assessing this.

The role of interviews in the selection process has been questioned recently with claims reported through the media that interviews are being used to 'socially engineer' medical student intakes and have been biased towards particular groups of students. Concerns have also been raised about the appropriateness and relevance of some of the questions being asked and the over reliance on the interview performance in the final selection of candidates.

Frustrations arise when students with very high past academic performance are unsuccessful in gaining a place in medical school, with the place being awarded to a student who has lower past academic marks, based on the outcomes of the other selection methods - normally the interview. The outcome of this is that the unsuccessful candidate and their family question the relevance and appropriateness of the interview.

There are also numerous intensive training programs that are designed especially to coach students in 'how to be successful in the interview.' This does raise some concerns that students may just say what they think the interviewers wants to hear, not what they actually

practise or actually believe. While this may be true of interviews in general, it is an important limitation to consider.

What determines the relevance of the interview is the design of the interview questions, the type of questions asked, the interview protocol and, importantly, the skill of the interview panel in assessing the candidate. Interviews need to be structured and the results reproducible. Considered selection and comprehensive training of the interview panel is crucial. Interviewers need to be trained to ensure they fully understand the interview process and the boundaries of their role.

It has been proposed (Powis, 1998) that an interview should not be used to select candidates, but rather be used as one of the components of the process. That is, the interview performance should be recorded against rating scales that are matched to the desired behaviours or attributes. The scoring sheet is then assessed independently from the interview panel members. This reduces the likelihood of interviewer bias, unintended or otherwise, and focuses the interview panel on the attributes being assessed.

Interestingly it has been reported that the University of Queensland is phasing out the interview component of their selection process, as it has not been found to correlate with improved performance later in the course. This may be a reflection of an inadequate interview process, rather than a reflection of interviews in general.

While an interview may be an appropriate - or even necessary - part of the selection process for entry into medical school, it is subjective and variable and there are limitations and questions on its predictive value. In the absence of strong evidence to support such heavy dependence on the interview component of medical school selection processes, the AMA believes it should be given no more than equal weighting with the other components.

Targeted access schemes

It is important that the medical workforce reflects to a significant degree the diversity of the Australian community at large and that groups which have been disadvantaged in their access to medical school be given special consideration. The selection processes used by medical schools should accommodate the need to encourage participation by indigenous students and students from rural areas in particular.

Regarding rural participation, in 2005 the AMA Federal Council adopted the following position on access schemes for rural/regional students:

> *Medical schools should have a student mix that reflects the proportion of regional/rural people in the Australian population. Subject to appropriate academic benchmarks, this should be achieved through the establishment of specific enrolment targets, the beneficial weighting of enrolment criteria in favour of regional/rural students or some combination of these. Commonwealth and state/territory Governments should cooperate to ensure that rural secondary school students are aware of the opportunities to enter medical school.*

Summary

The selection of students into medical school has recently received increased attention. It is undoubtedly a very important issue as it shapes our future medical workforce.

Selection criteria for entry to medical school should be clearly stated and relevant to successful performance as a medical student and to future professional life as a medical practitioner.

Selection should be based on a combination of assessment methods or tools, with past academic performance as the keystone, not just used as a 'sieve'. Psychometric testing and interviews may well be appropriate. Whatever methods are used should be supported by research to ensure they are both fair in application, reliable and valid in predicting future performance as a student and doctor.

The weighting applied to the various selection components should be made with consideration of their strengths and limitations. This means that past academic performance should be given at least equal weight with other components and that the interview should not be given undue weight. If in future the number of selection tools used is increased, this should not result in a reduction of the weighting applied to past academic performance.

The AMA supports variations between medical schools in their selection criteria to meet their individual requirements and special consideration for groups which have been disadvantaged in their access to medical school. The resultant diversity can only strengthen medical education and help maintain a medical workforce which is highly skilled, professional and responsive to the needs of the Australian community.

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