



There are at least three imperatives for adopting a selection process for entry to medical school. First, there is usually a need to reduce numbers because courses are typically oversubscribed. Second, however, an admissions barrier is necessary even when courses are undersubscribed, because

and the potential efficiency and effectiveness of the selection strategies.

#### **A Formal Mathematical Model Underlying Selection**

We consider that all practical selection processes

1. *Academic achievement (A)*. Demonstrated ability in public examinations, particularly the learning, recall, and utilization of factual information. This is related to intelligence in its narrower definitions.

2. *Intellectual and reasoning skills (I)*. An individual's style of manipulating concepts and information, and of approaching study and learning.

major groups are briefly outlined here, together with the personal characteristics required of students to meet such objectives. The relationship between the pressures and the required personal characteristics is summarized in Table 1.

### Pressures Within the University and Medical School

deep processing, problem solving, and logical reasoning. It is broadly orthogonal to academic achievement.

3. *Personality (P)*. The enduring characteristics of individuals such as adaptability, maturity, extraversion, perseverance, initiative, and intrinsic motivations. Much "biodata" (Herriot<sup>7</sup>), assessed as "interests" and "hobbies," can be viewed as indirect indicators of personality; playing a musical instrument is an indicator of commitment, perseverance, and drive, *inter alia*.

4. *Demographic characteristics (D)*. Typically fixed sociological indices such as age, sex, ethnic origin, domicile, type of school attended.

5. *Interpersonal and communication skills*

Universities are concerned principally with education, and therefore try to select students who will respond well to teaching and pass examinations. Universities also wish to produce graduates who will enhance the reputation of the institution. They may also consider the broader student community, searching for students who will make the institution a dynamic, happy working environment, perhaps by participating in extracurricular activities and gaining what William Osler called an avocation alongside their vocation of medicine. The personal characteristics of applicants that would favor achieving these objectives are (grouped by objective):

**Table 1. Policy-Making Matrix**

	Candidate Characteristic <sup>a</sup>									
	A	B	C	D	E	F	G	H	I	J
<b>University Pressures</b>										
Examination Achievement	*	o								o
Long-Term Academic Success	*	*	*							*
Professional Competence		*	o			*		o	o	
Specific Curriculum	o	*	o			o			o	o
Medical School Community				*	o	o			*	
<b>Professional Pressures</b>										
Legal/Registration/Certification								*	o	
Maintaining Standards		*	*			o		o	o	*
Selection for a Specialty			o	o		*		*	o	
<b>Community Pressures</b>										
"Good" Doctors				*		*		o	*	*
Optimal Matching of Characteristics to Specialties						*			*	
<b>Political Pressures</b>										
Affirmative Action/Discrimination/Bias	o				*			*		
Fee-Paying Overseas Students					*					

They might therefore recommend the selection of students with particular approaches to study and learning (I), motivation (M) for independent study, personality (P) reflecting intrinsic drive, and appropriate attitudes (AT). Specialist expertise may also depend on psychomotor skills (PM), as in surgery, or interpersonal skills (IC) as in general practice or psychiatry.

### Political Pressures

Universities are subjected to external pressures on their activities from political and legal sources, particularly when training professionals to work in large, expensive organizations, such as health services.

3. *Selection for career speciality.* Different specialties require different skills and attributes, and if these skills are less amenable to training,

1. *Discrimination, bias, and affirmative action.* In the United Kingdom, legislation such as the Race Relations Act (1976) and the Sex Discrimi-

(IC), then specialties may recommend their emphasis at selection (Gough & Bell<sup>11</sup>). Additionally, attitudes (AT), personality (P), or demography

affirmative action on the basis of race or sex. Equality of opportunity means that academic achievement (A) will be the predominant selection criterion.

The law requires that certain demographic infor

costs and benefits. Thus although extra costs may be incurred from educating and employing hand-

separate from fairness at the individual level, as exemplified by the Bakke case in the United

hidden value expressed as altruism, accruing to

individual but fair socially to a minority group

society, and from the educational benefits for the medical school of having handicapped individuals in its classes.

that previously had been discriminated against.

**Moral Pressures: Fairness. Justice.**

**The Potential of Selection Processes  
for Identifying the Personal  
Characteristics of Applicants**

SELECTION OF MEDICAL STUDENTS

parental aspirations or expectation of high financial rewards on graduation).

2. Psychological and other self-descriptors

essed indirectly (and not always reliably; e.g., Richards et al.<sup>17</sup>). Attitudes (AT) and motivation (M) however, can be assessed directly by

Selection

Religion

Characteristics

**Why Is There a Problem of Selection?**

Expressing the selection process in the form we have described indicates clearly that the fundamental problem of selection arises from the nature

of health care. The hurdles are set to ensure that eventually the number of qualified applicants matches the number of places available. Self-selection systems are often advocated because they seem neutral and passive from the selectors' point of view; the selectors can simply observe those

of the policy-making matrix (Table 1). Except in a few cases, individuals who actually jump over the hurdles

short-listed candidates are interviewed by a selec-

3. Siegler M, Osmond H. Models of madness. *British Journal*

1993; 113: 1102-1103.