

The Rationale, Politics and Practice of High Stakes Testing: Undergraduate Admission to Medicine in Ireland

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The Working Group on Undergraduate Medical Education 2003

Working Group Mandate

- Quality and funding of medical education and ability of the system to increase the number of graduates
- Everything was up for review – student intake numbers, entry mechanisms, educational programs and curricula, teaching methods, clinical training, funding, oversight structures



Working Group (cont)

Entry Mechanisms

- Current mode of entry to medical school was based solely on the basis of the Leaving Certificate performance
- Demand so outstripped supply that extraordinary academic performance required (minimum of 570 points out of a maximum 600 required)
- Career choice made at an early age
- Lack of diversity in the mix of entrants

Working Group (cont)

Recommendations

- Mix of **undergraduate** and **graduate** entry students
- Undergraduate selection mechanism should not be exclusively coupled with Leaving Certificate results
- There should be a two-staged admissions process: Leaving Certificate plus Standardised test
- Entry method should be fair and transparent – concern about interviews and references
- Consideration should be given to characteristics such as interpersonal skills, integrity and professionalism
- There should be a built-in ongoing **evaluation** of outcomes
- Process should be evidenced-based
- **Review** of new systems for entry to medical school within 3 years of implementation

Outcome re Undergraduate Admissions

Tender Process

- ACER selected to develop an aptitude test with 3 constructs:
 - Logical Reasoning and Problem Solving
 - Interpersonal Understanding
 - Non-verbal Reasoning
- The aptitude test, HPAT – Ireland was to have a one-third weighting and the LC two-thirds.



Aptitude tests in medical school admissions

- Complement school-based achievement measures
- Focus is on individual aptitude not socioeconomic background
- Information on capacity to reason in unfamiliar areas
- Data that is consistent across jurisdictions
- Evidence for international or non-school applicants
- Facilitates high-end discrimination



Aptitude Tests and Predictive Validity

What the research says:

- **SAT**
 - Correlation with FGPA , corrected for attenuation was 0.52. If high school GPA in the mix correlation with FGPA rose to 0.61 and at high end after correction was 0.69 (Bridgeman et al, 2000)
- **GRE**
 - GRE plus GPA predicts first year GPA more effectively than any other piece of information. Multiple correlations after correction for attenuation range from 0.55 to 0.60 (Powers, 2001; Schneider and Briel, 1990)
- **LSAP**
 - 0.4 correlation with first year law school performance; 0.5 when a multiple correlation is calculated using College PA as the additional predictor (Stilwell, Dalessandro and Reese, 2005)



Aptitude Tests and Predictive Validity (cont)

- MCAT
 - When used in combination with undergraduate GPA accounted for an additional 17 per cent of the variance in medical school performance in contrast with using GPA alone (Association of American Medical Colleges AAMC, 2002)
- GAMSAT
 - Predictive validity of first year medical students 0.33. GPA plus GAMSAT explained 43 per cent of first year variance (Coates, 2007a, 2008a)
- uniTEST
 - A combination Year 12 score and uniTEST components explains up to six per cent of the variance in the GPAs and generally explains more variance than either measure on its own.



Reaction in Ireland

- The points system works – “if it ain’t broke, don’t fix it”
- Test designed to benefit male students
- Top Leaving Certificate achievers did not get offered a place in medicine
- HPAT – Ireland has created new inequalities
- Disappointed applicants will apply to UK medical schools and vacate courses in Irish universities
- New opportunities for the “grind schools”



A sample of the media reaction....

Scrap unfair aptitude testing for entry into medicine, say doctors

High scorers signing up to try again

Testing the gender balance

Welcome for more men doing medicine

Controversial aptitude test shatters Gabrielle's dream of medical school



What did change?

- Places in medicine in 2009 went to 83% of first-time Leaving Certificate students. In 2008 there were only 59% first-time LC students
- 2009: 48% of offers to male students (in 2008: 40%)
- Some top LC scorers did not get offered a place

It is important to understand that there were more forces at work than HPAT – Ireland to bring about the changes listed above.





National research group evaluating revised entry mechanisms to medicine



OLLSCOIL LUIMNIGH
UNIVERSITY OF LIMERICK



Trinity College Dublin (TCD)

Research should evaluate following parameters

Utility = educational impact x reliability x validity x cost effectiveness x acceptability

Schuwirth and Van der Vleuten, Maastricht, 2004

Judgement should be reserved until this information is available but the public and media have already judged.....

Summary of terms of reference

- **School leaver entrants**

HPAT – concurrent/predictive validity/weighting of Leaving certificate and HPAT /effect of “practice tests” and repeating HPAT/socio demographic impact of the new mechanisms

**HPAT – 2.5 hour paper with 3 sections all non curricular
(1) Logical Reasoning and Problem Solving (2) Interpersonal
Understanding and (3) Non-Verbal Reasoning**

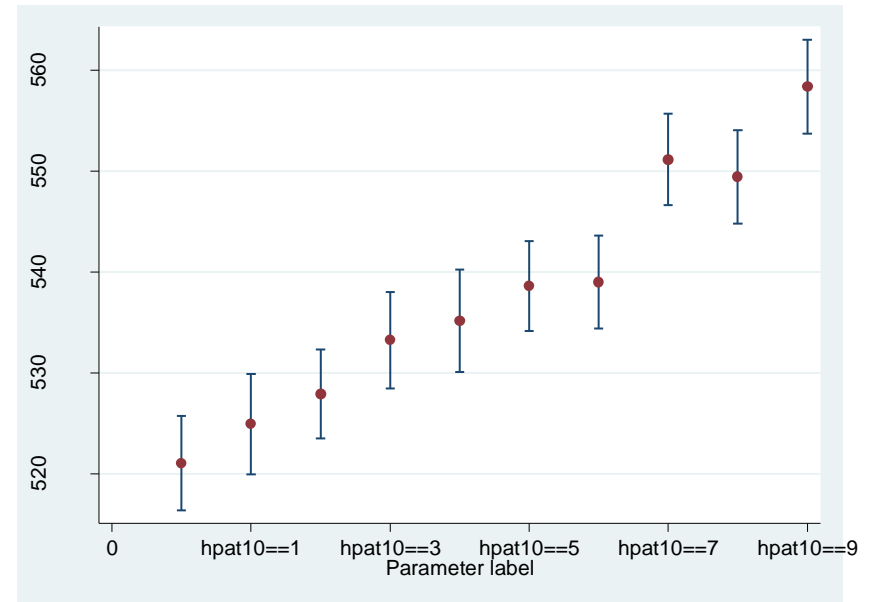
Concurrent validity

- Correlation between Leaving Certificate performance, i.e., points and HPAT scores with specific attention paid to performance in Leaving Certificate Matriculation subjects *English, Irish, third language ,mathematics and science subjects*
- Correlation with HPAT subsections and matriculation subjects

HPAT – the facts

- The test is **gender neutral** unlike the leaving certificate
- There is some correlation between performance in the leaving certificate and HPAT
- This degree of correlation is desirable – the additional test measures something different

Average LCE result by HPAT Decile



Sociodemographic

- Sociodemographic Profiles of all medical school applicants 2008-2010 obtained using geocoding
- Cross checked with data obtained from questionnaires sent to all medical school applicants – these questionnaires also aim to assess acceptability of the new mechanisms

HPAT coaching and retesting

- Approximately 10% of year 1 students took a HPAT course pre Feb 2009
- Likely that proportion was greater in 2010 – currently capturing this in a postal survey sent to all medicine applicants facilitated by the CAO
- Scores of coached versus non coached cohorts will be analysed
- Scores of all candidates who repeat HPAT will be analysed for the next 3 years [Data already available –UMAT (Griffin et al, 2008)]
- Section 3 – non verbal reasoning will be subjected to significant scrutiny

Utility of the new approach

Educational impact – you don't need 600 points...medicine requires more than academic ability and perhaps some encouragement for lower SEC groups

reliability consistency of marking, the quality of the test and the test items themselves – HPAT – good evidence available
Leaving Certificate – less data and perhaps more scrutiny should apply here

validity....need data – correlation with performance

x cost effectiveness – current mechanism is very cost effective applicants.

acceptability – mixed - request for interviews

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