



National research group evaluating revised entry mechanisms to medicine

Interim Report - School Leaver Entrants
Prepared by Dr Siun O'Flynn, Dr Anne Mills and Dr Tony Fitzgerald



Contents

Executive Summary & Recommendations	Page 3
Membership of Research Group	Page 7
Background	Page 8
1.1 Process of evaluation of outcomes	Page 14
1.2 Overview overall impact of new mechanisms	Page 15
1.3 Impact of the single sitting rule	Page 16
1.4 Gender Impact	Page 16
1.5 How does candidate performance in the Leaving Certificate compare with their HPAT-Ireland performance?	Page 17
1.6 Threshold Admission Scores	Page 17
1.7 Candidates from disadvantaged backgrounds	Page 18
1.8 Repeating HPAT-Ireland	Page 18
1.9 HPAT-Ireland Commercial Coaching	Page 22
1.10 Do the tests used in entry and selection predict subsequent performance?	Page 24
1.11 Continued use of current adjunct admission test HPAT-Ireland	Page 24

Executive Summary:

From the outset, academic leaders of all the medical schools in Ireland have been committed to the careful review and evaluation of the impact of the revised new entry and selection mechanisms to medicine introduced at the direction of the Department of Education and Skills, in the aftermath of the Fottrell report. *A National Research Group Evaluating Revised Entry and Selection Mechanisms to Medicine* was convened in 2009 under the auspices of the Council of Deans of Faculties of Medical Schools in Ireland is led by Dr Siún O Flynn.

Although it is still early days following the introduction of revised entry and selection mechanisms to Medicine in Ireland, it is important that accurate information is disseminated to the public. Therefore, although the new mechanisms are only in operation for a relatively short period of time, an interim report has been generated for the Higher Education Authority and several submissions have been made to the academic press.

Revised entry and selection mechanisms, introduced in 2009, were informed by the best available evidence at the time. Any further refinements will be influenced by findings of the *Research Group* and emerging evidence elsewhere to ensure that the processes employed in Ireland align with international best practice. The impact of the entry and selection reforms will continue to be evaluated carefully.

Since 2009, several hundred highly motivated young people have been granted an opportunity which would previously have been out of their reach to pursue a course of their choice. Unfortunately, there are also young people who have achieved excellence in the Leaving Certificate whose disappointment at their inability to secure a medical school place is compounded by the knowledge that they previously might have been successful. The demand for medical school places has and continues to far outweigh the supply. This disparity inevitably leads to disappointed candidates. This will be the case regardless of the entry and selection determinants employed.

Equity of access, fairness and transparency of process are fundamental principles enshrined in all aspects of the third level admissions and Irish Medical Schools are committed to ensuring that these principles underpin selection processes. These have also informed the recommendations issued in this report.

Initial conclusions:

- 1.1 There is a commitment by the Irish Medical Schools to evaluate in detail the changes introduced and to make this information available to the public.
- 1.2 The number of applicants to medical school continues to climb and has not been adversely affected by the new entry and selection approach introduced in 2009.
- 1.3 The Leaving Certificate is no longer “the sole selection mechanism for medical school entry”. The HPAT-Ireland admissions test contributes significantly to entry and selection decisions, as does the moderation of the Leaving Certificate score. This is in line with one of the recommendations of the 2006 Fottrell report on changes needed in medical education.
- 1.4 Candidates are now far less likely to repeat the Leaving Certificate examination. (e.g. 41% in 2008 before the introduction of HPAT-Ireland and 17% in 2009 after the test had been introduced)
- 1.5 The minimum CAO entry scores (Leaving Certificate and HPAT-Ireland combined score) needed for selection into medicine have increased from year to year. The mean Leaving Certificate admission scores have increased more than the mean HPAT scores.
- 1.6 Analysis does not provide any evidence of a gender bias associated with the introduction of the adjunct admission test HPAT-Ireland.
- 1.7 Candidates from disadvantaged backgrounds represent less than 4% of all applications to medical school. The reforms introduced in 2009 have not changed this trend but analysis shows they have not made it worse. This reinforces the importance of existing special access routes for such applicants.
- 1.8 Candidates who repeat the HPAT-Ireland test are likely to improve their score. Candidate scores improve in all three HPAT-Ireland sections but are most evident in section 3 (Non-verbal reasoning). A redistribution of the weighting of HPAT-Ireland

sections could lessen this effect for example if contribution of the section 3 score to the overall scores were reduced by 50%, this would reduce the impact of repeating the test. Repetition of HPAT-Ireland questions in tests, necessitated by the fact that scores are valid for a 2 year period, may also contribute to the benefit of repeating and should be discontinued.

Since 2010, approximately one third of medical school entrants have repeated the HPAT-Ireland test (a candidate can currently repeat the test any number of times and a HPAT score is valid for a two year period). Many of these entrants were already registered on a third level course and exited that course in the second year in order to take up the place in medical school (e.g. 111 of 434 students (26%) receiving places in 2010 were already in year one of another third level course). This incurs significant costs to the exchequer and means an equivalent number of other applicants in the previous year were deprived of their preferred third level course.

- 1.9 Candidates who undertake commercial HPAT-Ireland preparatory courses appear to slightly outperform candidates who do not. This finding is a cause for concern as not all candidates can access such courses. Having adequate practice materials available to all candidates can balance this concern. The practice material available to all candidates should be increased and ideally should include explanations of correct responses to ensure that all candidates have adequate opportunities to both familiarise themselves with the test format and the rationale supporting the selection of correct responses.
- 1.10 Students admitted to medical school through these new mechanisms are still in their early class years. It is thus too early to determine the extent to which HPAT-Ireland scores predict medical school performance. This is under review.
- 1.11 A further report will be issued in 2 years time at which point a decision will be made regarding the continued use of the HPAT-Ireland.

Recommendations

On the basis of three years of evidence of the performance of HPAT-Ireland, it is recommended that:

1. HPAT-Ireland scores be valid for a period of one year only.
2. A redistribution is applied to the weighting of HPAT-Ireland sections, as outlined in Table 1, to reduce the contribution of Section 3 scores to the overall score in order to reduce the impact of repeat effects.
3. Further practice material be made available to all HPAT-Ireland applicants which also includes some examples of correct responses and the rationales to these to ensure adequate opportunities for all to become familiar with the test format and sample items.

It is hoped that these recommendations will increase the value of the once-off HPAT-Ireland test score, and reduce the benefits of repeating and/or seeking external support to perform well on the test.

Table 1: Proposed revised weighting for each of the three sections of the HPAT–Ireland test

HPAT-Ireland TEST Section	Proposed Weighting
1. Logical Reasoning and Problem Solving	2 (40%)
2. Interpersonal Understanding	2 (40%)
3. Non-Verbal Reasoning	1 (20%)

The membership of the *National Research Group Evaluating Revised Entry and Selection Mechanisms to Medicine* is as follows:

- Dr Siún O Flynn, UCC (Principal Investigator)
- Dr Anne Mills, UCC, representing Admission Officers (2009 to 2011)
- Ms Celeste Golden representing Admission Officers (2012)
- Professor Bill Powderly, UCD, representing Council of Deans of Faculties with Medical Schools of Ireland (Chair)
- Professor Fidelma Dunne, NUIG
- Professor Deirdre Mc Grath, UL
- Dr Martina Hennessy, TCD
- Dr Jason Last, UCD
- Dr Richard Arnett, RCSI
- Mr Ivor Gleeson, Central Applications Office (CAO)
- Dr Tony Fitzgerald, UCC

Several international medical education experts have advised the group and will continue to do so.

Background

Medical Education in Ireland – A New Direction, also known as the Fottrell Report, was published in 2006. This report was accepted by the Ministers of Health and Education on behalf of the Government and has provided the basis of the many reforms in medical education that have been implemented in recent years. In Ireland, prior to 2009, entry and selection to medical school was based solely on performance in school exit examinations such as the Leaving Certificate Examination.

One of the many recommendations was that *“Leaving Certificate results should no longer be the sole selection mechanism for undergraduate students”*. The Fottrell report further proposed *“entry to the medical profession at multiple entry points and provide entrants from more diverse backgrounds”* noting that *“the ‘points race’ has an acknowledged negative effect”* but that any entry and selection mechanism *“must still ensure that students selected have the intellectual and emotional capability for a demanding course and profession”*.

At the request of the Department of Education and Skills, during the 2006/2007 academic year extensive technical and developmental work was undertaken by the Admission Officers, Deans of Medicine and Registrars of NUIG, TCD, UCC and UCD to explore new methods that the universities might consider for the competitive selection of students for entry to undergraduate medical programmes. In particular, these groups were required to consider potential additional methods of student selection which could be used in combination with the Leaving Certificate Examination, as well as the practical implications of such an initiative. The reports generated from this work met with a favourable response from the Expert Group (appointed by the Minister for Education and Science) and subsequently the Minister of Education and Science. At all stages in the process it was made clear to the Expert Group and to the Minister that any changes in admission of students to a degree programme requires the approval of the Academic Council of each University. Furthermore, the potential impact of a change to the selection mechanism for medicine would be carefully monitored by the Universities.

Principles of the revised mechanism

The following general principles for new selection criteria for entry in 2009/2010 were subsequently agreed by the Academic Bodies of NUIG, TCD, UCC and UCD and RCSI:

Stage 1 – Leaving Certificate Examination or equivalent

- Students would have to meet the University **matriculation requirements and achieve a minimum threshold score of 480 points in a single sitting of the Leaving Certificate Examination**, or equivalent, to be considered academically eligible applicants for a programme in Medicine and be part of the competitive selection process as outlined in Stage 2.

The choice of 480 points was based on the average B2 score in the Leaving Certificate and represents the top 10% of the Leaving Certificate cohort based on current Leaving Certificate scores.

The decision to require students to present the matriculation requirements and achieve a minimum threshold score of 480 points in a single sitting of the Leaving Certificate Examination, or equivalent, was based on evidence that a contributing factor to the high points required for programmes in Medicine and Health was the policy of allowing students to repeat their Leaving Certificate and to present their matriculation requirements over more than one year. An initial analysis of the 2006 CAO Nett Acceptances showed that 10% of these students repeated their Leaving Certificate, 30% of them were in the 580 – 600 points band. In the case of acceptances to Medicine, Dental Science and Pharmacy 65% of these students were repeats and 88% were in the 580 – 600 points band.

A further analysis of an intake to one medical school showed that none of the students repeated all of the required core subjects, instead selecting their six best subjects. It was agreed that if a policy of students having to satisfy all matriculation requirements in one sitting were to be introduced, it would level the playing field for all applicants while at the same time would not exclude students who chose to repeat the full Leaving Certificate. The change occurred in parallel with development of a graduate entry route to medicine. Students also had the opportunity to proceed with a different degree and at a later stage consider the graduate entry route to medicine.

Stage 2 – Combined Leaving Certificate Examination and Admission Test Score

- For students who met the Stage 1 criterion, entry to Medicine programmes would be determined on the basis of a combined weighted score of the Leaving Certificate (LC) and a the results of a general admission test.
- The general Admission Test (AT) applied would be an internationally recognised and validated examination but the precise test would be subject to ongoing assessment and a competitive tendering process. The sole selection criterion for entry to medicine would be on the basis of the combination of the Leaving Certificate Score (LC) and the Admission Test (AT) using a weighting of 2:1 LC:AT up to 550 points and moderated thereafter.
- Leaving Certificate scores above 550 points would be moderated to strike an appropriate balance between the perceived pressures on students to achieve perfect Leaving Certificate scores while at the same time recognising excellence when it has been achieved.

Table 1: Proposed adjustment of Leaving Certificate Score (LCS) at 550 before the score on the Admission Test is added.

Current LCS points	LCS adjusted from 550 with an additional 1 point for each 5 LC points thereafter
540	540
545	545
550	550
555	551
560	552
565	553
570	554
575	555
580	556
585	557
590	558
600	560

Selection of the Test

Following the agreement in principle by the Academic Bodies of the Universities, the Admission Officers Working Group researched a number of possible Admission Tests including the UKCAT (UK Clinical Aptitude Test), HPAT-Ireland Health Professions Admission Test (Australian Council for Education Research) which was already being used in the University of Ulster and UMAT Undergraduate Medicine and Health Sciences Admission Test (Australian Council for Education Research) which is used widely in Australia and New Zealand. The final decision to choose HPAT-Ireland was based on the outcome of an EU procurement tendering process.

The Universities requested tender applications for an internationally recognised and validated selection test suitable for the selection of students for undergraduate medical programmes. The criteria, for test providers to be deemed suitable to engage in a process of

competitive dialogue, was based on the ability of their proposed test and organisation to meet the following priorities:

- The Admissions Test must be valid and reliable and be supported by both a strong research base and an organisation with a track record in the development and management of selection tests for undergraduate medical and/or health related programmes, in an English speaking environment.
- The Admission Test must complement the Leaving Certificate assessment and hence it is intended that the selected test would not have a test curriculum. Instead, it would examine mental ability, reasoning, personal skills and professional attributes - as a result it was intended that there would be no value in revision as preparation for the Admission Test.
- The Admission Test must be scheduled so that it interferes as little as possible with the Leaving Certificate Examinations or with student preparation for that examination (which excludes the period mid-February to June) and it should also be suitable for multi-centre use.
- The results of the selection test must be available in a reliable timeframe which is compatible with the Irish Universities admissions processes.
- The cost of the test to the student is price sensitive and should be not be prohibitive.
- Admission Test scores would have to be achieved within 2 calendar years of admission to the undergraduate medicine programme with a maximum of two attempts over a two year period where the best score could be counted.

Following the competitive tendering process a revised process for entry and selection to medical school was introduced in 2009, which included the adjunct admission selection test HPAT-Ireland.

The maximum HPAT –Ireland score is 300 and this represents summative scores from three separate sections of a 2 ½ hour best answer from four options multiple choice paper. The sections are: **1. Logical Reasoning and Problem Solving** where candidates are required to

identify appropriate conclusions from a piece of text or information presented graphically; **2. Interpersonal Understanding** where candidates are asked to infer judgements and motivation of participants represented in a scenario or dialogue and **3. Non-Verbal Reasoning** where there is a requirement to analyse and predict patterns and sequences of shapes, letters or numbers.

It should be noted that the HEA proposal that the Universities from 2012 allocate bonus points to candidates taking higher level mathematics occurred subsequent to the process outlined above further changing the entry and selection processes in place.

1.1 Process of evaluation of outcomes

A National Research Group Evaluating Revised Entry and Selection Mechanisms to Medicine was convened under the auspices of the Council of Deans of Faculties of Medical Schools in Ireland. The Research Group comprises representation from academic medical education staff of each medical school, university admission officers, the Central Applications Office and external experts. This group has undertaken a comprehensive evaluation which aims to determine the educational impact, reliability, validity, cost effectiveness and stakeholder acceptability of the new entry and selection approach.

The introduction of the new entry and selection mechanisms in Ireland has received a mixed reaction. There were suggestions that the new adjunct test, HPAT-Ireland, discriminated against the academically excellent and that there was a gender bias. It became important therefore to evaluate this carefully and ensure that accurate information is disseminated to the public.

Although the precise Leaving Certificate or HPAT-Ireland performance which must be attained in a given year in order to secure a place in medical school is determined by the applicant pool and demand for places, applicants and other stakeholders seek clarity and transparency in relation to representative or “threshold” admission scores which must be achieved. The *Research Group* therefore sought to determine these.

All candidates who sat HPAT-Ireland in 2009 and subsequent years signed a waiver allowing their results to be analysed for research purposes. All medical schools have committed to releasing assessment and progression data to allow correlation between admission scores and subsequent medical school performance.

The information presented below summarises analysis of data which has been submitted or, is in the process of being submitted, in more detail to various journals and is also undergoing peer review.

1.2 Overview overall impact of new mechanisms

2009 entrants

In 2009, 2913 candidates applied to medicine via the Central Application Office. There were 429 medical schools places allocated to Leaving Certificate students for competitive entry and selection i.e. places were available for approx 15% of the applicant pool. The introduction of the new mechanisms changed the outcome for approximately 11% of the total applicant pool. Therefore, approximately one third of those who secured a place in medicine would not previously have done so. An entry scheme based on the combined HPAT-Ireland and an un-moderated Leaving Certificate score would have affected the outcome in the case of 5% of applicants or 25% of those who secured a medical school place, illustrating the impact of moderation of the Leaving Certificate points calculation.

2010 entrants

In 2010, there were 3292 applications to medicine via the Central Application Office. There were 434 medical schools places allocated to Leaving Certificate students for competitive entry and selection and therefore places were available for approx 13% of the applicant pool. The application of the new mechanisms changed the outcome for approximately 12% of the total applicant pool. Therefore, over two fifths of those who secured a place in medicine would not previously have done so. An entry scheme based on the combined HPAT-Ireland and an un-moderated Leaving Certificate score would have affected the outcome in the case of 6% of applicants or 24% of those who secured a medical school place again illustrating the impact of moderation of the Leaving Certificate points calculation.

Many candidates therefore who might not have achieved the previously punitive high points scores required have now secured a place in medical school and the Leaving Certificate is no longer the sole determinant of entry and selection decisions. Consequently the reforms introduced have implemented one of the Fottrell recommendations.

1.3 Impact of the single sitting rule

The stipulation that meeting matriculation subject entry requirements must be achieved in a specific Leaving Certificate attempt had a significant impact. This was documented in press releases in 2009 which noted that *“83% of successful applicants were first time leaving cert students in 2009 compared with 59% in 2008”*. In the three years since the introduction of the new mechanisms the majority of applicants (over 75%) applying to medical school now present one Leaving Certificate result.

As this addresses one of the perceived negative aspects of the ‘points race’ alluded to in the Fottrell report it can be considered a desirable outcome with a positive educational impact.

1.4 Gender Impact

Females predominate in medical school applications in Ireland and for some years females have been more likely to secure a place. This is a trend mirrored internationally and is not just an Irish phenomenon. In 2009, this trend was adjusted when males represented 50% of medical school entrants. This reversed again in 2010 when the majority (60%) of medical school entrants were female and there was a slight male preponderance in 2011. Therefore the gender representation of medical school entrants has varied each year since the introduction of the revised entry and selection mechanisms.

It is hard to establish precisely the explanation for the effect in 2009 but it cannot be entirely attributed to the HPAT-Ireland. There was a slight difference in gender performance in mean gender total HPAT-Ireland scores in 2009 but there was also a gender difference in Leaving Certificate scores whereby eligible male medical school applicants (i.e. achieve > 480 points and meet matriculation requirements) performed better than females. Smaller gender differences in mean HPAT-Ireland scores have been observed in 2010 and 2011 with males slightly outperforming females but this difference is less than 2 points of a total test score of 300 and is not judged to be statistically significant. The difference in overall HPAT-Ireland scores appears to stem from subtle differences which exist in gender performance in

HPAT-Ireland subsections, with males appearing to consistently slightly outperform females in section 1 (Logical Reasoning and Problem Solving) and section 3 (Non-verbal reasoning) while this is reversed with females appearing to consistently slightly outperform males in section 2 (Interpersonal Understanding).

Historical analysis of Leaving Certificate performance has established that females tend to achieve higher scores than males, however, analysis of the Leaving Certificate scores of eligible medical school applicants since 2009 reveals that in two of the three years males have tended to outperform females.

1.5 How does candidate performance in the Leaving Certificate compare with their HPAT-Ireland performance?

Candidates who perform well in the HPAT-Ireland also tend to perform well in the Leaving Certificate and vice versa. The new adjunct admission test HPAT-Ireland was introduced to specifically measure domains under-represented in Leaving Certificate assessment. For this reason, it is desirable that the two tests do not give exactly the same results (i.e. that the concurrent validity and correlation coefficient is not high). There is evidence that those who perform well in the Leaving Certificate tend to perform well in HPAT-Ireland, but to a level which suggests that the new test may also measure different attributes.

1.6 Threshold Admission Scores

What do you need to get in or to secure a place? What should applicants aim for?

Although a full range of scores can be achieved by candidates in either the Leaving Certificate or HPAT-Ireland, in practice there is a clustering of scores which then defines the real threshold admission scores for that year in either test. Of those offered places in Medicine in 2009 the combined scores (i.e. adjusted Leaving Certificate points and HPAT-Ireland results) ranged from 713 to 779. Within the combined scores the Leaving Certificate results of successful applicants have ranged from 520 to 600 points and the HPAT-Ireland scores have ranged from 153 to 225.

The threshold minimum admission scores for the HPAT-Ireland have increased slightly between 2009 and 2011 however mean HPAT-Ireland scores in the applicant population have also increased slightly. Such trends are not unusual in a context of introduction of adjunct admission tests and are related to test familiarity and an increase in applicant understanding of the impact of such tests in final entry outcomes. This trend has also been observed in the UK and Australia and a steady state in applicant HPAT-Ireland test scores is likely in the near future. The majority of successful medical school applicants achieve a HPAT-Ireland score in excess of 170 or above the 80th centile.

The threshold Leaving Certificate admission scores have varied, initially dropping in 2009 but they have subsequently increased slightly each year thereafter. For example in 2009, 44% of successful applicants secured a Leaving Certificate Score of 550 points while in 2010 fewer than 21% of students with this score were successful.

It is difficult to predict thresholds precisely in advance and consequently candidates must aim to do well in all tests in order to enhance their chances of securing a place.

1.7 Candidates from disadvantaged backgrounds

Candidates from socio-economically disadvantaged backgrounds are under-represented in medical school applications representing less than 4% of all applicants. This finding is not unique to Ireland and such an observation mirrors international trends. At cohort level, there is no evidence of any change in the sociodemographic composition of medical student applications or intake since entry and selection mechanisms were revised. Other measures are needed to encourage applications from disadvantaged students and special admission routes such as those currently in place are essential.

1.8 Repeating HPAT-Ireland

Candidates who repeat the HPAT-Ireland are likely to improve their scores and this appears to be unaffected by their initial HPAT-Ireland score. Four hundred and ninety six candidates

repeated the HPAT in 2010 which represents 17% of all candidates (2913) who took the test in 2009. 80% of these improved their scores with one third improving their scores by 10% or more. Five hundred and forty one candidates repeated the test in 2011 which is 16% of the entire 2010 cohort who sat the test (3292). Again, over 85% improved their scores with 40% improving their scores by 10% or more.

This was still evident after adjusting for regression to the mean, a statistical phenomenon whereby those with lower scores at their first attempt will tend to increase subsequently. This data is further illustrated in table 2.

Although repeat candidates perform better in all sections of the HPAT-Ireland, this effect is more marked in relation to section 3 (Non verbal reasoning). This is illustrated in Table 3. The reliability of the type of assessment items in this section has also been questioned by researchers who evaluated a similar test used in Australia.

There is, however, also an inherent benefit to any candidate who presents two scores as the better score will be used in any entry and selection decision. Such a benefit is removed if a candidate is required to present a HPAT-Ireland score from a test taken the year an application to medical school is made.

As the HPAT-Ireland score is valid for a period of 2 years “link items” or anchor items are used i.e. questions are repeated from prior tests to ensure results across years are comparable. Candidates therefore who repeat the test encounter such link items for the second time and this may confer an advantage. The requirement for such link items is removed if test results are valid for one year only.

Although it is generally desirable that any high stakes test scores are valid for longer than one year, allowing maximal applicant opportunity to access preferred course choices, it is critical that all applicants have a fair and equal opportunity to perform well in a test.

Consequently, for the reasons already outlined, consideration should be given to restricting the validity of HPAT-Ireland scores to one year only. It is our understanding that similar

reforms maybe introduced in Australia. Scores of some similar tests e.g. UKCAT are currently valid for one year only.

Multiple choice assessments are not routinely used in Irish second level education and it is possible that test format familiarity, which is inevitably higher in repeat candidates, is contributing to the enhanced performance of HPAT-Ireland repeaters. It is also likely that repeat candidates are amongst the most highly motivated which also impacts on subsequent scores. Finally, Leaving Certificate scores of candidates who repeat the HPAT-Ireland are higher than the scores of first time test takers suggesting that it is the higher achieving candidates who may have narrowly missed the threshold scores for a medical school place who tend to repeat the test and this also contributes to the trend that repeat HPAT-Ireland candidates tend to improve their scores.

In 2010, one third of medical school entrants presented one Leaving Certificate result and a repeat HPAT-Ireland result. A similar trend was observed in 2011. Many of these candidates exit a third level place in order to accept a place in medical school. In 2010 for instance, 111 medical school entrants had vacated another third level course in Ireland and accepted a place in medical school. This exit from other third level courses constitutes a significant hidden cost to the exchequer and has also deprived other candidates of a place in their preferred course.

Stipulating that candidates must submit Leaving Certificate (or equivalent) and HPAT-Ireland results from a single year would effectively eliminate this behaviour and was considered at length. It is however also a potentially punitive approach which could increase applicant pressure and stress and may disadvantage truly motivated applicants. Therefore, this option is not proposed at present.

Table 2 Change of total HPAT scores in candidates
who repeat HPAT 2010-2011

Change in HPAT scores	2009 - 2010		2010 - 2011	
	Freq.	Percent	Freq	Percent
< -20	5	1.01	2	0.37
-20 to -11	21	4.23	17	3.14
-10 to -1	65	13.10	52	9.61
0 to 9	123	24.80	90	16.64
10 to 19	116	23.39	154	28.47
20 to 29	89	17.94	131	24.21
30 to 39	56	11.29	62	11.46
40 to 49	18	3.63	21	3.88
50 to 59	2	0.40	10	1.85
≥ 60	1	0.20	2	0.36
Total	496	100.00	541	100.00

Table 3 Change in HPAT subsection scores in candidates who repeat HPAT 2009-2011

Average increase in HPAT subsections (95% CI)	2009-2010	2010-2011
HPAT section 1 <i>Logical Reasoning and Problem Solving</i>	4.9 (4.3 to 5.5)	3.2 (2.6 to 3.8)
HPAT section 2 <i>Interpersonal Understanding</i>	2.5 (1.8 to 3.2)	5.2 (4.5 to 6.0)
HPAT section 3 <i>Non-Verbal Reasoning</i>	5.6 (4.8 to 6.4)	8.3 (7.7 to 9.1)
Total HPAT score	13.0 (11.6 to 14.3) ^a	16.7 (15.4 to 18.0) ^b

a. 10.5 (9.1 to 11.9) after adjustment for regression to the mean

b. 15.7 (14.2 to 17.2) after adjustment for regression to the mean

1.9 HPAT-Ireland Commercial Coaching

The only way to determine candidate behaviour in relation to HPAT-Ireland preparatory courses is by seeking this information directly from medical school applicants. Responses to CAO postal questionnaires sent to all applicants in 2010 and 2011 achieved less than 25% response rates. Approximately 50% of respondents in each year admitted to availing of HPAT-Ireland commercial coaching courses. Costs of these courses vary but are generally several hundred euros. Although the majority of respondents who took a commercial preparatory course would strongly recommend that others do so this was often merely because “everyone is doing one” and that “it builds confidence”. Many respondents noted that the real value of such courses was the structured practice sessions which enabled them to become familiar with the orientation and format of the questions. The fact that course providers explained the rationale to correct responses was felt to be valuable as was the experience that that they also enabled practicing of the test in timed conditions.

The HPAT-Ireland scores of candidates who availed of commercial courses are higher than the scores of those who did not and this is evident in all HPAT subsections but is greater in the case of section 3 (non verbal reasoning). Although, the absolute difference in scores between the two cohorts is small, it is a cause of concern. The data, however, also demonstrates significant trait differences between candidates who take a commercial course compared with those that do not with respect to their academic ability i.e. it is predominantly the high academic achievers who access commercial preparatory courses. These characteristics no doubt also contribute to the improved scores observed. In summary, analysis of the data supports a benefit to taking such commercial courses however the observed higher academic ability of such candidates is also a significant contributing factor to this apparent benefit.

Clearly not all applicants have availed of commercial courses. The numbers of candidates whose performance has been analysed in this respect is small as candidates responses to the questionnaire were low and in many cases where candidates disclosed attending such courses they did not release their CAO number to allow correlation with the HPAT-Ireland scores attained.

Those promoting commercial courses emphasise the fact that a proportion of questions are repeated in tests from one year to another. Candidates are encouraged to memorise items and indeed to share them. Restricting the validity HPAT-Ireland of scores to one year only may undermine this practice.

As Multiple Choice Questionnaire testing is a relatively unfamiliar format in Irish second level education, it is important that all applicants appreciate that there is a need to become familiar with the test format and to practice timing. Furthermore, it is desirable that all candidates have access to sufficient practice material ideally with some exemplar responses.

Consideration must be given to further increasing the number of practice test items available to all candidates as this would provide the same opportunities for HPAT-Ireland test practice to all motivated applicants without the need to avail of commercial courses.

This type of behaviour is difficult to discourage however and the “grind” culture is unfortunately well established amongst medical school applicants.

1.10 Do the tests used in entry and selection predict subsequent performance?

The Points Commission has already established that Leaving Certificate performance predicts subsequent third level performance. The new adjunct admission test HPAT-Ireland is in use since 2009 reflecting three intakes in five medical schools. At the present time, the numbers of students admitted under this new mechanism are relatively small and this precludes any conclusions regarding the ability of the HPAT-Ireland to predict medical school performance, although this is under careful observation. This may be further confounded by other modifications in the CAO points allocations attributable to matriculation subjects such as the allocation of bonus points to mathematics. It should be noted however that at the present point there is no identifiable ideal aptitude test for medicine, however, several adjunct admissions tests are in use across the world.

1.11 Continued use of current adjunct admission test HPAT-Ireland

The universities have acted in response to directives from the HEA and Department of Education and Skills leading to the inclusion of an adjunct admission test in the determination of entry to medicine. There must be an added value to the addition of any test and equal opportunities must be available to all candidates who sit a test. These criteria will influence final decisions regarding the use of any admission test.

There is a 2 year lead in period before significant changes can be implemented in the current entry and selection approach. Within two years the situation regarding Leaving Certificate and HPAT-Ireland threshold entry scores should be approaching steady state and further data will be available to enable analysis of repeat performance in the HPAT-Ireland, the patterns’ for behaviour in relation to commercial coaching and the degree to which HPAT-Ireland may predict performance in medical school. At that point a decision will be made regarding its continued use. This implies that HPAT-Ireland will continue to be included in entry and selection decisions for the next four years, but perhaps in a moderated format.