New selection proceedures for entry to Medicine at QUB. Report on the 2012 Admissions process

Steele, K. (2013). New selection proceedures for entry to Medicine at QUB. Report on the 2012 Admissions process. The Ulster Medical Journal, 82(3), 157-159.

Published in:
The Ulster Medical Journal

Document Version:
Publisher's PDF, also known as Version of record

Queen's University Belfast - Research Portal:
Link to publication record in Queen's University Belfast Research Portal

Paper

New selection procedures for entry to Medicine at QUB. Report on the 2012 Admissions process

Keith Steele

Accepted

INTRODUCTION

Most medical schools both internationally and in the UK select on the basis of academic ability and intellect along with the determination of key personal competencies associated with success in the medical profession. Selection tests need to consider both cognitive ability and also test other competencies that underpin the doctor's role as a competent professional. These have been defined internationally and include communication skills ,ability to empathise, problem solving ,ethical behaviour and motivation.[1,2] These concepts are supported by the NHS Future Forum who in 2012 identified the need to select using both academic ability but also for beliefs and values.[3] The GMC have stated in Tomorrows Doctors that we should use selection criteria that take account of both the personal and academic qualities as set out in Good Medical Practice and that we have a duty as Medical schools to select applicants likely to graduate with these competencies.[4]

These concepts along with best evidence on selection from the literature and backed by our own research findings at QUB on the predictive validity of our own selection tools fashioned a major change in our own selection processes for 2012 entry to Medicine.[5,6]

METHOD

In 2012 we had 915 applications for 2012 entry(51%Northern Irish,23%Great Britain,12% Republic of Ireland,11% International and 3% other EU)for 236(home and EU) and 26 International places. The School had been actively recruiting trying to increase the number of applications from GB and Internationally and along with the Schools meteoric rise to 4th place ranking in the national student survey for medical and Dental schools has resulted in our applications rising year on year by 5-10 per-cent.[7]

It was agreed both by the School and University that we should adopt a two stage Admissions process. Stage I would rank applicants according to previous academic achievement and aptitude (by means of results in the UK Clinical Aptitude test) and this process has been previously described.[5] The top circa 600 applicants would progress to Stage 2 where they would be invited to an Assessment centre and undergo a twelve station Multiple mini Interview assessment to assess their non-cognitive competencies.

These stations were designed by a core team representing University academics, scientists, NHS consultants and the members of the public (the Medical Schools patients as partners group recruited by us to assist with medical training) and tested in various contexts to determine communication skills, empathy, problem solving, integrity, motivation and ethical reasoning. The assessment was blueprinted to ensure that each competency was tested and that they were tested in a least two contexts. Each station lasted 5 minutes with one minute between stations to allow candidates to read instructions. There were nine active and three rest stations .Candidates were briefed prior to each assessment and videos of the process were available on the Schools website.[6] Some 180 assessors took part and they were all previously trained in the process and represented both University and NHS staff from across the Universities Sub- Deaneries. Stations were a mixture of semi structured interviews and 1:1interviews with role-players who had been previously trained in their role. All stations carried equal marks and role-players allocated marks where appropriate allowing for a proxy input from the public (our future patients) into selection for Medicine. Four different groupings of stations were designed and blueprinted to ensure compatibility. These were randomly allocated over the four days on which interviews took place. Three circuits of interviews ran simultaneously allowing thirty six candidates to be assessed at any one time. Assessors entered their marks onto Opscan sheets allowing the process to be machine marked. Assessors were encouraged to record feedback for candidates. Candidates were offered a tour of the Medical school after completing the process and were also informed about availability of feedback and our Appeals process.

RESULTS

We interviewed 568(70 per-cent) of our 814 local and EU applicants who had achieved 37 points or better as a result of their previous academic achievement when combined with results of their UKCAT aptitude test. Candidate's marks ranged from 28-96 per-cent and this distribution was positively skewed. The pass mark for the MMIs was set by the

Department of General Practice, Queen's University Belfast, Dunluce Health Centre, Lisburn Road, Belfast BT9

Correspondence to K Steele

k.steele@qub.ac.uk

<center>Table 1:</center>

Ten point plan used to obtain Multiple Mini Interview score

1. All station scores/global scores are recorded
2. Station scores converted to percentages
3. Percentages regressed on global scores to estimate cut-score for each station
4. Cut-scores are averaged across all stations used on particular days – so 4 different average CS obtained
5. Pooled standard deviation (within days) of unadjusted average score obtained (SD)
6. Alpha-coefficients obtained for each day: Average weighted by number of participants per day calculated (alpha)
7. SEM calculated: SEM = (1-alpha)0.5 * SD
8. SEM added to CS for each day
9. Each day's individual average scores adjusted to CS+SEM for that day
10. Students are ranked from highest to lowest based on adjusted score. Any student below 50.0 is automatic failure.

assessors by means of borderline regression and offers made to candidates according to their ranking whose marks were greater than a cut or pass score determined by the panel. Our 10 point plan to determine MMI ranking was devised after advice from our statistician and is described in Table 1. Only 23(4 per-cent) of candidates failed to reach the cut score and they were felt to be unsuitable to admit. Offers were made to 350(62 per-cent) of candidates and these were made on the basis of interview ranking alone. The percentage of offers made to candidates over the four days ranged from 60-68 per-cent. Of those interviewed 183 of 294(62 percent school leavers, 62 of 95(65 percent) post A level applicants, 69 of 110(65 percent) graduate applicants and 36 of 69 from other categories (52 per-cent) were made offers. Marginal means for gender, student classification (A-E) and adjustment for UKCAT score (1-6) are shown in Table 2.Gender is significant with females performing better than males although this disappears for graduate applicants. There was a positive

correlation with UKCAT score whether we used the total score or classification rank (1-6). Our Chronbach's alpha of reliability was 0.52 based on percentage grades for each station rising to 0.58 if it was based on the assessor's global score awarded to the candidate. Candidates received feedback on request and were informed of the number of offers made, their individual ranking, their performance in each station compared to other candidates and any assessors comments on their performance. Successful candidate's were also obliged to obtain an AAA at A level for school leavers or a BBB for graduates along with a 2:1 or higher degree. In August 2012 we had a number of unfilled places and these were allocated on the basis of interview ranking to applicants who were not holding an offer from another Medical school.

International applicants were interviewed for a separate quota of 26 places using three of our MMI stations taken from the 2012 assessment and utilising a panel of three interviewers. The pass mark for each station had previously been determined by our assessors. Interviews were carried out in Singapore and Malaysia. Fifty applicants were interviewed and offers made to 29.The final breakdown for 2012 entry cohort to Medicine was 66 per-cent school leavers or post A level entrants, 25 per-cent graduates and 9 per-cent from other groups. Twenty per-cent of our intake was from GB and 10 per-cent were International. 56 per-cent were female.

DISCUSSION

It will take time to determine whether interviewing our applicants improves the quality of our students. Overall we have increased the diversity of our entry cohort both in terms of nationality and academic background. We have been actively recruiting both nationally and internationally for several years and the number of GB applicants has increased 10 fold with an 8 fold increase in International applicants over the past 5 years. Both University colleagues and our NHS partners have supported the selection process and without their help it would not have been possible. Involving the public in the process has been important as we are recruiting the doctors who will eventually serve them. Bringing applicants from GB and ROI to Belfast and offering them tours of the medical school has increased conversion. Active

<center>Table 2 :</center>

<center>*MMI Scores 2012*</center>

<center>*Marginal Means for Gender, student classification (A-E) and Adjustment for UK-CAT score (0-6)*</center>

Group	Male (Mean + CIs; n)	Females (Mean + CIs; n)
A	63.0 (61.5-64.5) (n=120)	66.1 (64.9-67.3) (n=174)
B	62.8 (60.4-65.2) (n=46)	66.0 (63.7-68.3) (n=49)
C	40.1 (28.6-51.6) (n=2)	62.0 (59.4-64.7) (n=38)
D	67.0 (64.7-69.4) (n=50)	66.8 (64.7-68.9) (n=60)
E	60.7 (56.5-64.9) (n=15)	63.0 (59.6-68.2) (n=14)

Means adjusted to an average UK-CAT score of 3.95. Effect on MMI score per unit increase in UK-CAT score is 1.14 (0.40-1.87) (A= school leavers; B=post A-Level;C=Leaving Certificate; D=Graduates;E=Scottish Highers, IB, Other EU applicants).

recruitment, updating our websites, improved promotional material and offering interviews in SE Asia has increased our International applications. For 2013 entry we hope to offer International applicants the opportunity of being interviewed in Belfast and we also plan to hold interviews in N America.

Managerially we have been able to interview nearly 600 applicants in 4 days thanks to the efficiency of Admissions QUB who have computerised Stage 1 of the process along with our excellent school assessment office staff who have professionalised the process.

We were not surprised at the positive skew of results as the assessment is not attempting to pass/fail but rather rank in the main very trainable applicants. It is humbling that 28 per-cent of our 2012 entry cohort have at least 1 A star and 7 per-cent have 4 A stars. By employing borderline regression we were able to be confident that we are admitting applicants with levels of non -cognitive competencies that are acceptable to our assessors and this also allowed us to ensure equity when considering International applicants. All selection tests are biased to some extent but it was reassuring to see that female school leavers did as well as graduate applicants. Male school leavers who excel at UKCAT did less well and we carefully looked at our stations to ensure that they were not biased against them. Our process also allows for multiple points of entry (A-level, post A-level and graduate) and we would hope that feedback to applicants will improve their performance if they choose to apply second time around.[8]

We will endeavour to improve our Chronbach's alpha of reliably by decreasing the number of competencies tested for 2013 entry and also by moving away from checklist type answers. There is good evidence in the literature and indeed in our own findings that checklists don't capture performance as well as global judgments despite their intuitive appeal as being objective e.g. it is difficult to see how a binary checklist could effectively discriminate between candidate's communication skills. Eva ,the father of the MMI process describes the value of sampling and talks about "the wisdom of crowds". He argues that averaging across many flawed judgments yields good information.[9] Given that the competencies we are trying to measure are arguably difficult to objectively measure we are moving away from objective to global measurement scales for 2013 entry. Entry to Medicine

at QUB is competitive and becoming more so. There is no perfect selection process. Our remit is to make our process as fair and transparent as possible so that will withstand the Freedom of Information requests that inevitably flow when some candidates and their parents are disappointed

REFERENCES

1. General Medical Council. Tomorrow's doctors: outcomes and standards for undergraduate medical education. London: General Medical Council; 2009. Available online from: http://www.gmc-uk.org/TomorrowsDoctors_2009.pdf_39260971.pdf. Last accessed July 2013.

2. Mann KV, Ruedy J, Millar N, Andreou P. Achievement of non-cognitive goals of undergraduate medical education: perceptions of medical students, residents, faculty and other health professionals. *Med Educ*. 2005:**39(1)**:40-8

3. Field S, Chair. NHS Future forum: summary report - second phase. London: Department of Health; 2011. Available online from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/152169/dh_132085.pdf.pdf

4. General Medical Council. Good medical practice. London: General Medical Council; 2013. Available online from: http://www.gmc-uk.org/static/documents/content/GMP_2013.pdf_51447599.pdf.

5. Steele K. Selecting tomorrows doctors. *Ulster Med J*. 2011;**80(2)**:62-7

6. School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast. Centre for Medical Education: Prospective students. Belfast: Queen's University; 2013. Available online from: http://www.qub.ac.uk/schools/mdbs/medicine/Prospectivestudents. Last accessed July 2013

7. The Sunday Times University Guide 2013. The Sunday Times. 2012 Sep 13; Suppl.

8. UKCAT Consortium. Annual report and financial statements for the year ended 31 March 2012. 2011-12. Nottingham: Queen's Medical Centre; 2012. Available online from: http://www.ukcat.ac.uk/App_Media/uploads/pdf/Annual%20report%202011%20Final%20version.pdf

9. Eva K, Hodges BD. Scylla or Charybdis. Can we navigate between objectification and judgment in assessment. *Med Educ*. 2012;**46(9)**:914-9.