National on-line recruitment to foundation programmes in the UK: evolution and evaluation

The UK Foundation Programme Office has successfully delivered the second year of the nationally coordinated and internet-based process for placement to foundation schools. This article describes the process, its development and evaluation. Fair and transparent procedures have been used, satisfying equal opportunities legislation.

Several coordinated matching schemes for preregistration house officers have been reported over the years, each with varying degrees of success (Shah and Farrow, 1976; Lazarus et al, 1984; Dent and Gillard, 1990) and the possibility of a national matching scheme was received with little enthusiasm by postgraduate deans (Gillard et al, 1992). A Birmingham scheme was withdrawn as a failure (Alexander-Williams and Stephenson, 1973).

Nevertheless, in 2000 the first fully internet-based appointment scheme in the UK was developed by one of the authors (RGP) for all preregistration house officer posts in the West Midlands in response to demands from medical students for an open and fair process. Its success triggered the subsequent development of the on-line Multi-Deanery Appointment Process (MDAP) in 2004, a collaboration between the four postgraduate deaneries of Leicester, Northampton and Rutland, Trent, West Midlands and Yorkshire, sponsored by the Department of Health. Key features were the removal of interviews, introduction of automated scoring of some components of the application, and the introduction of personal statements with candidates identifiable by code only; statements were scored anonymously by panels set up in the deaneries. The statement headings were considered to reflect the attributes of a good well-rounded doctor, especially team working, leadership, planning and organization, and other qualities described in *Good Medical Practice* (General Medical Council, 2001). Two referees were contacted by e-mail. Posts were allocated according to score, with those having the highest scores gaining their first preferences (Palmer and Howes, 2005).

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In 2005 there were eight postgraduate deaneries – the new collaborators were Kent, Surrey and Sussex, London, Northern Ireland and North Western – with more than 3000 posts, almost 50% of those available in the UK. All UK deaneries agreed a common person specification, application form and scoring guidelines through the Conference of Postgraduate Medical Deans. The internet-based process was similar to the first year of MDAP. Automated scoring of medical school success and degrees was discontinued, for details to be incorporated into personal statements. New statement headings included academic and non-academic achievements.

Lessons learnt, some learnt the hard way

There were some important learning points from the first year of MDAP. Personal statements were of value in differentiating candidates and the automated scoring component of the scheme was a technical success although in practice it was not as useful as hoped. It proved very difficult to develop the content of the web pages for the medical schools for students to show their marks for each module, especially if curricula had changed or if students had time out-of-programme. Automated scores could, however, be used for degrees. They were less meaningful for prizes, some of which are prestigious and highly sought after, and others that may be much less popular and more easily obtained.

The issues faced were different in the second year. The website was open to applicants for more than 6 weeks, but most candidates tried to submit in the last 48 hours available, leading to server overload and anxiety for candidates. The closing date was extended by 24 hours and no candidates were excluded from the system. The results of the outcome of the allocation were delayed for a week so that the impact of recent and major changes in status for international medical graduates could be considered. There was a minor security breach when a hacker guessed the access code to references; it was rectified within 24 hours.

It was decided that applicants whose scores were in the bottom 5% would not be allocated posts without a face-to-face assessment. The low scorers were assumed to be the poorest candidates, and could include those who might become problem doctors (there had been several high-profile cases of problem doctors at that time). This decision led to outcry from students, relatives and consultants, and, in response, this requirement was dropped. Several senior academics expressed concern that the past system of short-listing and interviewing had been lost, asking 'how is it conceivable that an untested computer system should replace selection processes carefully developed by dedicated professionals over many years?' (McCollum et al, 2006). Their views achieved headline news (Hawkes, 2006). In response, others recognized that the internet-based process 'was equitable and transparent, which

could not be said for an interview system that has historically been paternalistic and biased' (Long, 2006).

National recruitment process for the foundation programme in the UK

The full national process for foundation recruitment was developed in 2006 for foundation year 1 (F1) posts that commenced August 2007. The MDAP model was used as the basis of the design and adapted in light of experience, and enhanced with extensive input from stakeholders. Originally F1 recruitment was a component of the Medical Training Applications Service (MTAS), which was subsequently abandoned during the specialty recruitment crisis in 2007. However, the foundation programme recruitment process has emerged unscathed and will continue with relatively minor modifications this year for posts that start in 2009.

Special attention was paid to several key areas. It was essential to work in very close collaboration with partners and stakeholders namely postgraduate deans, medical school deans, the British Medical Association, NHS Employers, NHS trusts, medical students and foundation doctors. Good communication was made a priority. There was a nationally agreed person specification and application form. Regular legal advice was obtained to ensure that all processes conformed to EU legislation and employment law. Equality and diversity impact assessments were carried out for each component of the process. Detailed eligibility criteria were developed, which included the qualifications and application requirements for applicants.

Openness and transparency for all aspects of the scheme have been considered to be essential. Advice on completion of the application form, information on the popularity of foundation schools, tips for writing good answers, the scores attainable for each question and details about the scoring of applications were given in an applicant's guide available online (www.foundationprogramme.nhs.uk). Detailed information on the applicant's timeline, eligibility criteria and person specification are some of the other documents openly available at this website.

Extensive work was undertaken to develop the questions for candidates on the application form, with detailed scoring criteria. The questions were designed to demonstrate the applicant's academic aptitude as well as ability to analyse, reflect and learn from life experiences relevant to foundation training. For 2008 a total of 55 points were allocated for answers to the seven questions on the application form and medical schools gave an academic ranking based upon quartiles worth 30, 35, 40 or 45 points each. Therefore the maximum score achievable was 100. National calibration and training workshops for scoring were held, and detailed criteria were made available to the scorers in each foundation school.

The initial allocation was to foundation school only, and the number of candidates allocated was no more than the number of posts available. Scores were used to determine access to the school of first choice, those with higher score getting preference over those with lower scores. For those who did not gain a place in the school of first choice the scores were used to determine which of their other preferences was allocated if places were available. Foundation schools matched the allocated applicants to specific posts – the majority took the option of this being coordinated through the centralized computer process. There were clinical assessments for those who would have qualified 2 years or more before taking up post (introduced for 2007–8 recruitment).

Facts and figures

In 2007 there were 6472 applications for 6483 posts and in 2008 there were 7269 applications for 7248 posts. However, in 2008 a number of applicants were subsequently withdrawn as they were found not to have met the eligibility criteria, or they withdrew for personal reasons. In 2007, nearly 94% of applicants were placed in their first choice foundation school and in 2008 this figure was 92.4%. All UK graduates were allocated to a school each year.

The following observations apply to the 2008 recruitment round:

- The ratio of female to male applicants was 1.46:1
- The mean score from personal statements for UK graduates was 30.2, European Economic Area (EEA) graduates 18.6 and non-EEA graduates 18.5
- The mean scores given by medical schools for females were higher than those for males (38.1 *vs* 36.6, $P<0.001$, Student t-test). Similarly the mean scores determined by personal statements were higher for females than males (29.6 *vs* 28.9, $P<0.001$, Student t-test).
- Academic and application form scores were related (Pearson's r value 0.179, $P<0.001$). The overlap between these scores is 3%.

On-line evaluation

The on-line evaluation of the first year of MDAP was voluntary, the candidates indicating their views on the process after the outcome was known. The response rate was 37%. There was a significant correlation between the degree of satisfaction expressed and the degree of success in the scheme (i.e. those who were successful said the process was good and those who were less successful were less supportive). Therefore, to remove this factor, for the subsequent 3 years candidates have completed a compulsory evaluation before being able to access their results (99% return – the remaining 1% are likely to have accessed results directly from their medical school or foundation school). *Figure 1* shows 3 years of data with more than 16 000 responses, applicants giving scores between 1 (fully disagree) and 6 (fully agree) to the statements:

- The scheme was fully explained and I had the information I needed
- Access to the website was good
- The personal statements were easy to understand
- The system was fair
- I was happy there were no interviews
- A similar system should be used next year.

The responses have improved significantly with time. Females gave higher mean scores than males for all questions, many of which reached statistical significance. Similarly graduates gave higher scores than non-graduates and scores increased with the age of the candidate.

In 2008, the most common response (the mode) was 5 (the maximum being 6) for all statements except 'A similar system should be used next year' which was 4. Two extra statements in 2008, not used in MDAP, were 'my academic achievements

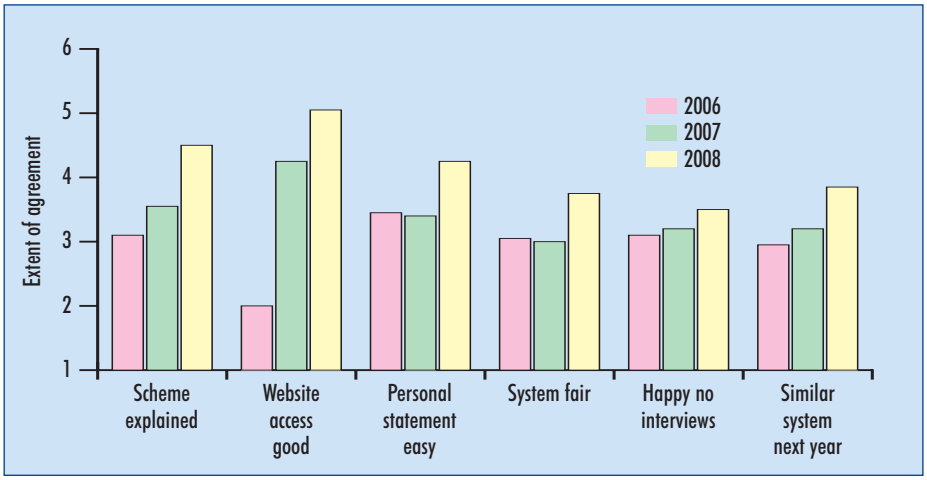

Figure 1. On-line evaluation – mean scores to each statement 2006–8 (1 = fully disagree, 6 = fully agree).

were adequately recognised' and 'I was happy placing foundation schools in order of preference'; the mode for both of these was again 5.

At a later date, there was also a voluntary on-line questionnaire that could be completed by anyone involved in the appointment process. There were 585 responses of which 80% were from medical students and 9% were from foundation doctors. A number of themes emerged: there was general consensus that the website was good, the timetable was appropriate and that the person specification, eligibility criteria and applicant's handbook were of a high standard. The majority agreed that the application sections were easy to understand. However, most respondents did not agree with the statement that the questions had the right mix of academic, clinical and non-clinical experience. They also disagreed that the points they could achieve for each question were appropriately weighted.

In addition, there was no consensus on the quartile ranking system or whether applicants should be ranked in deciles in the future, and the majority were against the suggestion that there could be a single national examination at medical school that produces a ranked score. Almost half thought that the balance of academic to personal statement score was wrong and that the academic score should be worth more.

Those involved in scoring were content with the system used and the information available. There were numerous proposals for changes for the future, many suggesting that there should be an interview, although retention of the current system with slight modifications only was also a commonly held view.

Discussion

Forty years ago, a Royal Commission on medical education recommended a systematic approach to appointment to junior doctor posts (Todd, 1968). Several local schemes that developed around the country were not always successful (Alexander-Williams and Stephenson, 1973; Shah and Farrow, 1976; Lazarus et al, 1984; Dent and Gillard, 1990). The advent of the internet has allowed a regional on-line scheme to be successful and to develop into a national process. It is now possible to say that the recommendations of the Royal Commission have been achieved for foundation programme allocations and that the system developed has improved with time. The days of patronage are truly behind us.

Many, but not all, of those who benefitted from patronage in the past would have had initiative, good academic records and good interpersonal skills. These individuals would also have performed well at interview. The questions of the application form were designed to ensure that candidates with these attributes would also have gained good scores. Therefore the inherent unfairness of patronage has been removed and good candidates who might have benefitted from it can also be successful in the new scheme. The strengths of the centralized process include a single application for all posts within the four home countries, minimal disruption to student studies and increased efficiency with reduced time and costs for trust medical staffing personnel, consultants and deaneries.

The UK Foundation Office has ensured that all aspects of the scheme are openly available and transparent, and that scoring of applications is set against objective criteria. Possibly this is a main reason for its success, in contrast to the failed MTAS where there was an apparent lack of transparency and openness about the scoring system.

The scores based on quartiles made available by medical schools have proved to be valuable when differentiating between candidates. The next step would be to 'fine-tune' this contribution with, say, scores based upon deciles. A national examination where students are ranked academically across the country might be even better, but is unlikely to be achievable in the near future; medical schools traditionally have been independent when determining course structures and assessments and there would be little motivation to reach consensus on the content and timing of a national examination. Also the responses to the 'open' questionnaire suggest that students themselves would be against ranking from a single national examination to allocate posts.

It is a measure of success that 92–94% of applicants were placed in their first choice foundation school. Also the on-line evaluation scores have increased over 3 years reflecting improvements that have been made and possibly showing that an internet-based scheme is becoming more accepted by students. The evaluation and the subsequent open questionnaire reveal the lack of consensus about the right mix of academic, clinical and non-clinical experience in the questions on the application form. Possibly it would be very difficult to get agreement on this because the views of individuals will be coloured by their own abilities and experience. Selection bias has to be taken into account when considering some of the different findings in the two surveys.

Females had higher mean scores than males, both from the medical schools and from the applications. This suggests that the greater diligence and ability demonstrated by girls over boys at school (Gillborn and Mirza, 2000) may continue to some extent during medical student years as well. There was a significant correlation between the academic and application form scores, although the overlap was small; possibly

they are measuring different areas of aptitude and ability. It could therefore be argued that a single score from a final examination alone would not necessarily be an adequate measure of the broad range of competencies required of a doctor.

Females also responded more positively than males to the on-line evaluation. Graduates gave higher scores than non-graduates and scores increased with age of a candidate (these are not independent variables). One explanation could be that some females and mature students are more receptive to change than other students.

It is important that we continue to strive for perfection, recognizing that it is often impossible to achieve, and that it is unlikely that all participants will be satisfied. Nevertheless it is anticipated that the process coordinated by the UK Foundation Programme Office will continue to improve with increased acceptance by all stakeholders over the coming years.

Conclusions

The internet has made it possible to develop a national scheme for the recruitment of foundation doctors which, after in some initial resistance, is generally being accepted as efficient, effective and fair. Its evolution has been eventful and its evaluation shows that it is improving with time. **BJHM**

Conflict of interest: none.

Alexander-Williams J, Stephenson IG (1973) Appointment of pre-registration house officers. *BMJ* **ii:** 605–6

Dent TH, Gillard JH (1990) The allocation of pre-registration house officer posts in the four Thames regions: a survey of house officer opinion. *Med Ed* **24:** 535–9

Gillard JH, Dent TH, Hicks BH (1992) Allocation of junior hospital doctors to pre-registration posts: does Britain need a national matching scheme? *Med Ed* **26:** 228–32

Gillborn D, Mirza HS (2000) *Educational inequality: mapping race class and gender. A synthesis of research evidence.* Office for Standards in Education, London (www.ofsted.gov.uk/Ofsted-home/Publications-and-research/Browse-all-by/Education/Inclusion/Minority-ethnic-children/Educational-inequality-mapping-race-class-and-gender/(language)/eng-GB accessed 13 November 2008)

General Medical Council (2001) *Good Medical Practice.* Guidance on good practice. General Medical Council, London (www.gmc-uk.org/guidance/archive/gmp_2001.pdf accessed 13 November 2008)

Hawkes N (2006) Pick a doctor by computer 'fiasco'. *The Times* **March 4:** 1

Lazarus JH, Makinson DH, Kilpatrick GS (1984) Two-year experience with a computerised matching programme for allocation of pre-registration house officer posts in Wales. *Med Ed* **18:** 43–5

Long A (2006) Matching junior doctors with training posts. *The Times* **March 8**: 22

McCollum C, Barnet D, Greenhalgh R et al (2006) Choose doctors by interview, not by computer. *The Times* **March 4:** 22

Palmer RG, Howes J (2005) Internet recruitment to foundation year one programmes. *BMJ Careers* **331:** 263–4

Shah AR, Farrow SC (1976) Pre-registration house appointments: a computer aided allocation scheme. *Med Ed* **10:** 476–9

Todd AR (1968) *Royal Commission on Medical Education.* The Todd Report. HMSO, London

KEY POINTS

- An on-line scheme for allocation to UK foundation programme posts has been successfully introduced.
- Challenges and difficulties in its evolution were numerous.
- Evaluation has shown that the scheme has improved with time and has become more accepted by candidates.