



Competition ratios for different specialties and the effect of gender and immigration status

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DECLARATIONS

Competing interests

SAM is Deanery representative on the Specialist Training Committee (STC) for Trauma and Orthopaedics in the South Coast Deanery, and also sits on the Opportunities in Surgery Committee at the Royal College of Surgeons of England, its Women in Surgery sub-committee, and the Equal Opportunities Committee of the British Medical Association. All of these committees are voluntary and not remunerated.

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Ethical approval

Not applicable

Introduction

Some specialties have always been very competitive. Careers advice for medical students and junior doctors is often patchy.¹⁻³ The Medical Schools Council reported 'an urgent need' for medical schools to provide more comprehensive information regarding careers.⁴ Competition ratios have been published, but these were only to be found in obscure human resources publications⁵ until Shelley Heard's recent paper in the *BMJ Career Focus*.⁶ None of these previous studies mentioned the immigration status of applicants, or the extreme gender differences in applications for different specialties.

There has always been a career-defining moment when a junior doctor obtains a training post in his/her chosen specialty with a National Training Number (NTN). Until 2007, an NTN was only awarded with a Specialist Registrar (SpR) post in the chosen specialty, often following several years in the Senior House Officer (SHO) grade. Modernising Medical Careers (MMC) was an initiative to streamline training and move the career-defining moment to an earlier point in a doctor's career.^{3,7} There has been little mention of how to select candidates for those popular specialties where 90% of applicants currently do not get a post. With selection occurring earlier, there is even less to choose between candidates. The Tooke report into MMC has recommended moving the career-defining moment two years later, but this is still much earlier than occurred in many specialties prior to 2007.⁸

Analysis of equal opportunities monitoring data

The regional Deaneries for Postgraduate Medical and Dental Education administer the recruitment process for NTNs. Each Deanery collects equal opportunities monitoring data.

The monitoring data covering one year for all applications to SpR posts with NTNs in all specialties excluding general practice were analysed. 9126

applications for 1755 posts from two Deaneries were included (year to March 2005 for one larger urban Deanery and year to March 2006 for the other Deanery). The data cover several recruitment episodes, so multiple applications cannot be excluded.

The success rate (number of posts divided by number of applicants) ranged from 8% (ENT Surgery) to 68% (Rheumatology) (Table 1). Twenty three of the 51 specialties had a success rate of less than 25%, including eight of the ten surgical specialties and Cardiology.

The 'Big 4' specialties, with 10% each of the available posts, were: Obstetrics & Gynaecology, Anaesthetics, Paediatrics and Trauma & Orthopaedic Surgery. The other specialties are equally divided into those with 1-5% of all available NTNs (General Surgery, General and Old Age Psychiatry, Radiology, etc.) and those with <1% each of all available posts in that specialty.

Female applications and female success rate

There has traditionally been a huge difference in numbers of women and men in some specialties, particularly surgical specialties.¹ Medical students and junior doctors need to understand how competitive each specialty is, and to know that the selection process does not discriminate against women in the traditionally male specialties, in order to focus their efforts at the critical career-defining moment.

Fewer than 20% of the applicants were female in 13 specialties. These included Trauma & Orthopaedic Surgery (5%), Oral & Maxillo-facial Surgery (5%), Cardiothoracic Surgery (7%), Neurosurgery (7%), Urology (8%), Clinical Pharmacology (8%), Gastroenterology (9%), General Surgery (10%), Paediatric Surgery (10%), Cardiology (16%) and ENT Surgery (17%). In General Surgery, although only 10% of applicants were female, 25% of appointees were female.

Guarantor

SAM

Contributorship

SAM is the sole contributor

Table 1

Likely success rate for applicant to National Training Number (NTN) by specialty (2005 data)

Specialty	n/N (appointed / applicants)	% success	Female:Male OR with 99% CI
ENT Surgery	16 / 213	8	3.3 (0.8 – 13.9)
Trauma & Ortho Surgery*	122 / 1418	9	1.6 (0.6 – 4.2)
General Surgery*	84 / 757	11	3.7 (1.8 – 7.7)
Urology*	14 / 133	11	6.4 (1.0 – 39.7)
Obstetrics & Gynaecology	173 / 1407	12	0.8 (0.5 – 1.2)
Plastic Surgery	32 / 258	12	1.0 (0.3 – 3.4)
Neurosurgery*	15 / 112	13	0.3 (0.0 – 15.4)
Public Health Medicine	26 / 173	15	1.3 (0.4 – 3.8)
Gen & Old Age Psychiatry	74 / 322	18	1.9 (1.0 – 3.9)
Ophthalmology	41 / 226	18	2.1 (0.9 – 5.4)
Respiratory Medicine	48 / 219	22	3.7 (1.4 – 9.6)
Cardiology	69 / 299	23	1.6 (0.7 – 3.9)
Dermatology	45 / 193	23	1.4 (0.5 – 3.7)
Gastroenterology*	51 / 214	24	6.9 (1.9 – 25.4)
Forensic Psychiatry	21 / 85	25	0.9 (0.2 – 3.4)
Endocrinology & Diabetes	47 / 176	27	1.6 (0.6 – 4.0)
Medical Microbiology	27 / 96	28	1.5 (0.5 – 4.7)
Nephrology	23 / 81	28	2.2 (0.6 – 8.2)
Anaesthetics	166 / 562	30	2.7 (1.6 – 4.5)
Paediatrics	148 / 489	30	1.2 (0.7 – 2.0)
Histopathology	59 / 200	30	2.9 (1.3 – 6.6)
Radiology	63 / 203	31	2.4 (1.1 – 5.4)
Haematology	37 / 101	36	1.6 (0.5 – 4.7)
Infectious Diseases	10 / 26	38	16.3 (1.2 – 228.1)
Medical Oncology	24 / 62	39	0.6 (0.2 – 2.5)
Child & Adoles Psychiatry	36 / 84	40	1.6 (0.4 – 5.5)
Neurology	24 / 59	41	0.9 (0.2 – 4.0)
A&E	36 / 84	43	7.7 (1.7 – 34.2)
GU Medicine	17 / 38	45	1.1 (0.2 – 5.9)
Intensive Care Medicine	16 / 32	50	3.2 (0.3 – 34.2)
Geriatric Medicine	26 / 47	55	2.7 (0.5 – 14.5)
Clinical Oncology	45 / 75	60	2.7 (0.8 – 9.5)
Palliative Medicine	15 / 25	60	4.3 (0.3 – 56.5)
Rheumatology	19 / 28	68	1.3 (0.1 – 14.7)
All specialties with <10 posts	91 / 535	17	2.6 (1.4 – 4.8)

CI, confidence interval; OR, odds ratio

* = Specialty with 10% or fewer female applicants

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We calculated odds ratios together with 99% confidence intervals (in order to compensate for multiple testing) (Table 1). In one small specialty where no female doctors were successful (Neurosurgery) we used Haldane's estimator to obtain the odds ratio. The likelihood of a female applicant getting a post was significantly higher than that of a male applicant in nine specialties (Urology, General Surgery, Respiratory Medicine, Gastroenterology, Histopathology, Anaesthetics, Infectious diseases and Accident and Emergency). It may be the case that women have such a high success rate because only the most able apply. Female doctors should be encouraged that their

chance of success is higher than the overall success rate in most specialties.

Furthermore, a positive correlation was demonstrated between the proportion of female applicants and overall success rate for the specialty ($R^2=0.39$). This implies that women are actively not choosing, or being discouraged from applying for, the highly competitive specialties. The inference is that many capable women are not applying to certain specialties.¹⁰

This is despite 40–50% of new NTN-holders in other specialties with onerous out-of-hours or practical burdens being female (Anaesthetics 40%,

Table 2
Hypothetical success rate for candidates with right of UK/EU residency if immigration ruling persists in barring those without UK/EU residency, based on posts available in 2005

<i>Specialty</i>	<i>Hypothetical success rate</i>
Plastic Surgery	17%
Urology	18%
ENT Surgery	19%
Trauma & Orthopaedic Surgery	23%
General Surgery	36%
Dermatology	44%
Infectious Diseases	48%
Public Health Medicine	48%
General & Old Age Psychiatry	49%
Clinical Neurophysiology	50%
Oral & Maxillofacial Surgery	50%
Obstetrics & Gynaecology	51%
Cardiology	52%
Ophthalmology	55%
Clinical Genetics	67%
Occupational Medicine	67%
Medical Oncology	67%
Forensic Psychiatry	69%
Child & Adolescent Psychiatry	70%
Paediatric Cardiology	71%
Gastroenterology	82%
Nuclear Medicine	83%
Nephrology	86%
Neurology	90%
Respiratory Medicine	>95%
Clinical Pharmacology	>95%
Palliative Medicine	>95%
Histopathology	>95%
Acute & General Medicine	>95%
A&E	>95%
Radiology	>95%
Intensive Care Medicine	>95%
Geriatric Medicine	>95%
Clinical Oncology	>95%
Paediatrics	>95%
Anaesthetics	>95%
Genito-Urinary Medicine	>95%
Endocrinology & Diabetes	>95%
Medical Microbiology	>95%

A&E 47%, Obstetrics & Gynaecology 42% and Paediatrics 42%). Historical data for these other specialties showed they used to have female ratios of <10% at all levels, and some graphs of gender ratio over time showed 'dog legs' (i.e. sudden change) on the way to parity, implying a structural change or alteration of policy.¹ All doctors should be aware that a run-through grade or possession of an NTN gives negotiating power. It is much easier to arrange less than full-time work (LTFT) (previously known as Flexible Training) from a long post.¹¹ This is not only because the process takes

some time to arrange, but also because LTFT is usually used for the care of children/dependents or for sporting or other activities, and awareness of what level of input is needed evolves with time.

Effect of immigration status

On 7 March 2006, a new immigration ruling stated that any NHS Trust wishing to employ a doctor from outside the UK or European Union (EU) would have to prove that a 'home-grown' doctor could not fill the post, ending the permit-free training arrangement for international doctors.⁹ This immigration policy led to huge amounts of hardship and consternation. Data on the proportion of applicants with non-UK/EU immigration status have not been widely published. It has never before been an issue, when selection committees were choosing on merit.

The data presented here date from 2005, before the immigration ruling. In the two Deaneries studied, the proportion of doctors without right of residence in the EU applying for each specialty ranged from 20% (Infectious Diseases) to 89% (Rheumatology). The mean of non-EU applicants was 67% (standard deviation [SD] 17%). From these now historical figures, three-quarters of specialties had over half their applications from doctors without right of residency in the UK/EU.

The numbers involved varied between specialties, and the effect of barring these doctors without residency from being appointed would have changed the competitiveness for doctors with right of residency considerably. A hypothetical success rate for UK/EU applicants was calculated for each specialty, assuming that the number of posts available would not change (Table 2). For example: in Gastroenterology, the success rate was 24% (51 posts with 214 applicants); only 62 applicants (29%) had right of residence in the UK/EU, so their hypothetical success rate would rise to 83% (62 candidates for 51 posts) if those without UK/EU residency were barred from selection. The hypothetical success rate for UK/EU candidates in this sample would rise to 95% or above in 15 specialties, including A&E, Paediatrics, Intensive Care Medicine and Radiology. Three-quarters of the specialties had a hypothetical success rate of ≥50%. The five specialties that would remain most competitive, with a hypothetical success rate below 40%, are all surgical specialties.

Probable future direction

Although it has been well known that some specialties are more popular than others, the data

supporting this have only recently come into the public domain.⁶ Much of this information has still not reached the medical students and junior doctors who should use it to choose a career, or to focus earlier on how to become marketable for their application for their career-defining post. They should work on the parts of their CV that are lacking (commonly teaching experience, management, audit, keeping a logbook, writing articles, presentations and posters, attending courses, being aware of wider issues around medicine, etc). The data presented here only cover appointments to hospital medicine, whereas around half of all doctors choose general practice as a career.² Differences in competition between specialties should also be used for medical manpower planning.

Doctors should also be aware of the relative numbers of posts available in each of the specialties, as it is possible that larger specialties have more job-sharing potential, and possibly more geographical stability.

There has already been softening of the draconian ban on appointment of doctors without right of residency in the UK/EU. The outcome of a judicial review is awaited. These 2005 data show that 67% of applicants would not have been eligible for selection if the ban that came into effect the following year had been in force. The Tooke report found this proportion to be 42% applying to NTN's in 2007.⁸ The hypothetical success rate for each specialty is a crude tool, but it shows a wide variation between specialties in residency status of applicants, and hence gives a clearer idea of which specialties are the easiest to enter now that fewer doctors without UK/EU residency apply.

The field is changing rapidly. The exact timing of the career-defining moment is under review, but Tooke's suggestion of four years post-qualification is still considerably earlier than occurred prior to 2007.⁸ It is likely that the specialties will rank similarly in order of competitiveness. It is also likely that the surgical specialties will become ever more over-subscribed for several reasons. First, an application for the career-defining moment will occur at a much younger age, before the reality of commitment as a parent, or of having a partner with geo-

graphical ties, has hit most junior doctors. Second, the proportion of women applying is below 10% for most surgical specialties, and any change will increase the total number of applicants. Third, with earlier selection for the run-through grade, there will be less attrition of the pool of potential applicants for popular specialties through years of toil as a Senior House Officer and multiple rejections. MMC was not new in setting up a run-through grade; it just planned to start this earlier. The great challenge comes with selection, and with training. The Tooke report recommended a return to a two-stage selection process, partly since the 2007 recruitment had 'limited discriminatory function... particularly for highly competitive specialties'.⁸ It is hard to pick the most trainable, dextrous, knowledgeable, empathetic surgeons with enthusiasm for teaching, leadership and innovation. This is a great pity if selection panels have the task of rejecting 80% of those who apply.

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