

# SURGICAL TRAINING: STILL HIGHLY COMPETITIVE BUT STILL VERY MALE

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**The likelihood of obtaining a training post varies massively between all 65 medical specialties. The competition ratio (defined as the number of applicants per post) varies from 1:1 to 12:1.<sup>1</sup> There are few published competition ratios despite these being useful for junior doctors refining their career choice. Modernising Medical Careers (MMC) was a radical change, initiated in 2007, aiming to streamline, strengthen and shorten training.<sup>2</sup>**

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Women are still under-represented in the surgical specialties despite having been in the majority qualifying from medical school for the last 15 years.<sup>3,4</sup> Other specialties have increased their proportion of women, often over very short timescales.<sup>5</sup>

For surgical specialties, a previous article described competition ratios of 10:1 and the percentage of women applicants being 10%.<sup>1</sup> It also reported that those women who did apply had a statistically significant increased success rate. This paper analyses the competition ratios for all those applying to surgical specialties in 2008 and 2009 as well as the effect of sex.

## Methods

Information was obtained from all deaneries in England and Wales about recruitment episodes for surgical specialties in 2008 and 2009. Surgical training is divided into two phases: 'core training', which currently lasts two years, followed for most specialties by competitive selection into a specialty for a national training number. For this evaluation, we assumed that the specialty training numbers were obtainable in open competition to those who had completed

core training. This over-simplification will be explored in the discussion.

Applicants to ophthalmology were excluded as this specialty has run-through training and a different royal college.

The competition ratio for each specialty was defined as the number of applicants for each post. It was calculated as the number of applicants divided by the number of posts. The success rate is the chance of an individual applicant being successful. This was calculated as the number of posts divided by the number of applicants, as a percentage. The competition ratio is the reciprocal of the success rate. Both measures are included to aid understanding.

The chi-square test was used for statistical analysis comparing sex.

## Results

### *Competition ratio and success rate for all applicants*

We obtained data for all recruitment episodes into surgical training at core and specialty level for England and Wales in 2008 and 2009. Data for plastic surgery and otolaryngology in 2008 were not available.

**TABLE 1**

### APPLICANTS AND POSTS FOR CORE SURGICAL TRAINING

	Number of applicants	Number appointed	Success rate	Competition ratio
Core training posts in 2008	3,221	671	21%	4.8:1
Core training posts in 2009	2,425	668	28%	3.6:1

Table 1 shows both success rates and competition ratios for core training. In 2008 there were 3,221 applicants for 671 posts in core surgical training, giving a success rate of 21%. In 2009 there were 2,425 applicants for 668 core surgical training posts, increasing the success rate to 28% ( $p<0.001$ ).

Table 2 presents both success rates and competition ratios for applicants to specialty training. The number of specialty posts available is approximately half the number of core posts. The ratio of core posts to specialty posts increased from 1.8:1 to 2.4:1, a statistically significant change ( $p<0.001$ ).

Success rates into different surgical specialties varied from 2% to 11% in 2008 and from 5% to 25% in 2009. Table 3 shows the competition ratios and success rates by specialty for the two years combined.

#### The effect of sex

There was a statistically significant increase from 23% to 28% in the proportion of female applicants for core training between 2008 and 2009 ( $p<0.001$ ). For specialty training, there was a reduction in the proportion of female applicants from 16% in 2008 to 13% in 2009. Fewer than 22% of applicants were women in all specialties in both years except in paediatric surgery (Table 3).

Women applicants have a higher success rate than expected from the numbers who apply (Table 4). This higher success rate was statistically significant for applicants to specialty training in 2008 (16% female applicants, 22% females appointed,  $p=0.0004$ ).

There were marked differences in the proportion of women appointed between specialties and years. For example, in trauma and orthopaedics 14% of those appointed were women in 2008 and 8% in 2009. In general surgery, 32% of those appointed were women in 2008 and 16% in 2009.

#### Discussion

Junior doctors and medical students need to know competition ratios to refine their career choice. Data on competition ratios are scant. Those in Table 3 should be interpreted with caution as small numbers of posts mean differences between

**TABLE 2**

**APPLICANTS AND POSTS FOR SPECIALTY SURGICAL TRAINING**

	Number of applicants	Number appointed	Success rate	Competition ratio	Ratio of core posts to specialty posts
Specialty training posts in 2008	4,484	364	8%	12:1	1.8:1
Specialty training posts in 2009	2,844	282	10%	10:1	2.4:1

**TABLE 3**

**COMPETITION RATIOS AND SUCCESS RATES BY SPECIALTY (DATA FOR 2008 AND 2009 COMBINED)**

	Competition ratio	Success rate	Female applicants
General surgery	15:1	7%	17%
Trauma and orthopaedics	13:1	8%	10%
Cardiothoracic surgery	11:1	9%	15%
Otolaryngology	10:1	10%	11%
Urology	8:1	13%	13%
Paediatric surgery	6:1	17%	33%
Neurosurgery	5:1	19%	17%
Plastic surgery	*	*	*
<b>Total</b>	<b>11:1</b>	<b>9%</b>	<b>15%</b>

\*Data not available

**TABLE 4**

**WOMEN APPLICANTS TO SURGICAL TRAINING**

	Women applicants	Women appointed
Core surgical training in 2008	23%	25%
Core surgical training in 2009	29%*	31%
Specialty surgical training in 2008	16%	22%**
Specialty surgical training in 2009	13%	15%

\*The increase in proportion of women applying to core posts is statistically significant ( $p<0.0001$ ).

\*\*The excess of women appointed over that expected from the numbers applying is significant ( $p=0.004$ ).

specialties in an individual year are not significant. Despite the plan of MMC that a trainee would have a more streamlined passage through training, there are only specialty posts for half those who finish core training. A trainee intent on surgery may face a 25% success rate in obtaining a core training post, followed by a 9% success rate in obtaining a specialty post two years later.

Those involved in workforce planning should plan for the group of highly motivated doctors who are unsuccessful in their surgical specialty career choice;

it is currently very difficult to use transferable skills to make the transition into other specialties (such as emergency medicine or obstetrics and gynaecology).

There was a 'mixed economy' during this phase in that some specialties had run-through training at this time. In neurosurgery, most posts were in run-through training (ie including core training) although some were still offered at a higher level to cope with the transitional phase. In trauma and orthopaedics, some parts of the country were appointing to run-through training and some were

'uncoupled' with separate core and specialist training. It was not possible to remove this effect. It serves to worsen the discrepancy between the number of core training posts and the number of specialist posts available to those exiting core posts. There is a suggestion that the cohort of doctors who failed to get into training posts when MMC was introduced is beginning to dissipate since the total number of applicants fell by 25% to core training and by 37% to specialty training between 2008 and 2009 (Tables 1 and 2).

Women form the majority of medical school graduates and yet only 7% of UK consultant surgeons are female.<sup>4</sup> There are no easily available data elsewhere about the success rates for women applicants.

The women who applied were more likely to be appointed and, in some cases, the excess female appointments were statistically significant. When combined with the low proportion of women applying, it could be argued that only the most able women apply.

For core training, 25% of the applicants were women and for specialty training 15% were women. This may suggest attrition over the years. Mentoring may allow discussion or support on an individual basis. Selection into specialty training is the career-defining hurdle.

It is likely that sought-after specialties have not seen a need to change or adjust to be more welcoming to women. With competition ratios of 10:1, every item on an application form is important. Since criteria are judged on objective grounds, those that are accrued over time (eg research papers) may be more difficult for women to amass as child rearing occurs at the same time as postgraduate training for doctors.

#### **Advice to medical students, junior doctors and those who advise them**

All medical students and junior doctors should realise that surgical specialties remain intensely competitive and should focus on the real hurdles to enable their application to succeed. No discrimination against women could be found at any level; indeed, those who apply are more likely to be appointed. Since application forms are standardised, candidates should work on audits, research, teaching and management experience, qualifications and logbooks.

There may be a cohort effect in that in 2008 and 2009 there was still a cohort applying for jobs that had missed out on the run-through training promised when MMC started in 2007 and therefore an older group of doctors who had had several years of uncertainty. It is possible that women with intentions of having children would actively avoid such

uncertainty. The situation may improve in the years to come as the pre-MMC cohort will have too many years' experience to be eligible to apply for specialty training numbers. In future, with a few exceptions, only those finishing core training will be applying for specialist training and the percentage of women may be higher. Those in core training should work hard as there are twice as many doctors completing core training as there are specialty training posts available.

#### **Acknowledgement**

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#### **Conflict of interest**

SM is now on the Council of the Royal College of Surgeons. This work was carried out prior to her election and the views in this paper are her own.

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