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# Career specialty choices of UK medical graduates of 2015 compared with earlier cohorts: questionnaire surveys

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## ABSTRACT

**Objective** To report the career specialty choices of UK medical graduates of 2015 one year after graduation and to compare these with the choices made at the same postgraduate stage by previous cohorts.

**Design** National survey using online and postal questionnaires.

**Setting** UK.

**Participants** UK-trained medical graduates.

**Main outcome measures** Grouped and individual specialty choices.

**Results** The response rate was 41.3% (3040/7095). Among the graduates of 2015, general practice (27.8% of first choices) and hospital medical specialties (26.5%) were the most frequent first choices of long-term career. First choices for general practice declined among women from 36.1% for the 2005–2009 cohorts to 33.3% for the 2015 cohort, and among men from 22.4% for the 2005–2009 cohorts to 19.3% for the 2015 cohort. First choices for surgery declined among men (from 29.5% for the 2005–2009 cohorts to 21.7% for the 2015 cohort), but not among women (12.3% for the 2005–2009 cohorts and 12.5% for the 2015 cohort). There was an increase in the percentage of first choices for anaesthesia, psychiatry, radiology and careers outside medicine. Anaesthesia, oncology, paediatrics and radiology increased in popularity over time among men, but not among women.

**Conclusions** Career choices for general practice remain low. Other current shortage specialties, apart from radiology and psychiatry, are not showing an increase in the number of doctors who choose them. Large gender differences remain in the choices for some specialties. Further work is needed into the determinants of junior doctors' choices for shortage specialties and those with large gender imbalances.

## INTRODUCTION

Currently there are a number of specialties in UK medicine with known shortages of doctors and difficulties in filling available training posts. A February 2016 report by NHS Improvement, the body charged with 'helping the NHS to meet its short-term challenges and secure its future', identified emergency medicine, acute general medicine, diagnostic services (radiology and pathology) and psychiatry as being particularly under challenge.<sup>1</sup> The NHS Improvement report focused on hospital services and did not specifically address general practice. A recent systematic review confirmed the challenges to recruitment in primary care, and

found that early exposure to primary care practice was an important consideration in motivating recruitment.<sup>2</sup>

Information on career choices of newly qualified doctors is important for long-term planning. Early choices are highly correlated with specialty destinations. Our previous studies of the long-term career plans of UK medical graduates surveyed 1 year after graduation have included the cohorts of 1974, 1977, 1980, 1983, 1993, 1996, 1999, 2000 and 2002 in order to provide this information.<sup>3–6</sup> Here we add data from five cohorts of UK medical graduates between 2005 and 2015. The aim of this paper was to report the career choices of the graduates of 2015 one year after graduation and to compare these with the choices made by previous cohorts at the same career stage, to present trends in firmness of specialty choice, to compare men's and women's choices, and to compare career choices of graduates from different UK medical schools.

## METHODS

The UK Medical Careers Research Group surveyed the UK medical graduates of 2015. We sent questionnaires 1 year after qualification (in June–October 2016) to all medical graduates of 2015 from all UK medical schools. Up to four reminders were sent to non-respondents. Further details of the methodology are available elsewhere.<sup>7</sup> We draw comparisons with our surveys, also at 1 year after qualification, of the 2005, 2008, 2009 and 2012 cohorts who were surveyed using similar methods.

We asked respondents *What is your choice of long-term career specialty?* inviting them to nominate up to three choices in order of preference and to indicate if any of the choices were of equal preference ('tied' choices). Doctors described their specialty choices in their own words, and we assigned each response to a specialty, and if necessary a subspecialty, according to a coding scheme developed over many years and based on nationally recognised designation of specialties. Individual specialties were grouped by us into 14 groupings. We then asked *How sure are you about the first choice given above?* with *definite*, *probable* and *unsure* being the possible responses. For this paper, we counted the number of doctors who chose each specialty as a first choice (whether tied or untied).

In the analysis we constructed a binary variable for certainty of choice by combining those who replied *definite* or *probable* versus those who



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**Table 1** First choice of long-term career of UK medical graduates of 2015, surveyed in 2016: broad specialty groupings, comparing men and women

Grouped specialty	Numbers			Percentages			Men–women comparison	
	Total (N=3040)	Men (N=1206)	Women (N=1834)	Total	Men	Women	$\chi^2$ value	P value (df=1)
General practice	844	233	611	27.8	19.3	33.3	79.4	<0.001
Hospital medical specialties	805	294	511	26.5	24.4	27.9	4.4	0.037
Surgery	492	262	230	16.2	21.7	12.5	44.6	<0.001
Anaesthesia	480	251	229	15.8	20.8	12.5	37.3	<0.001
Paediatrics	261	82	179	8.6	6.8	9.8	7.8	0.005
Emergency medicine	171	80	91	5.6	6.6	5.0	3.5	0.061
Psychiatry	165	66	99	5.4	5.5	5.4	0.0	0.994
Obstetrics and gynaecology	164	26	138	5.4	2.2	7.5	40.0	<0.001
Pathology	97	42	55	3.2	3.5	3.0	0.4	0.524
Radiology	92	53	39	3.0	4.4	2.1	12.0	<0.001
Radiotherapy and oncology	78	36	42	2.6	3.0	2.3	1.1	0.285
Public health	28	9	19	0.9	0.7	1.0	0.4	0.533
Community health	9	1	8	0.3	0.1	0.4	2.0	0.158
Other medical specialties	21	7	14	0.7	0.6	0.8	0.1	0.710
Not stated	105	31	74	3.5	2.6	4.0	4.3	0.039
Non-medical	44	23	21	1.4	1.9	1.1	2.5	0.117

Note: The numbers given are for tied and untied first choices.

replied *unsure* to the question *How sure are you about the first choice given above?*

We used non-parametric tests ( $\chi^2$  tests, Mantel-Haenszel  $\chi^2$  tests for linear trend) to compare patterns of choices between subgroups and to explore trends. When there were significant differences, we used adjusted standardised residuals to identify unusually high or low cell counts for individual specialties or grouped specialties.

## RESULTS

### Response rate

In 2015, 7364 UK doctors graduated (3240 men, 4124 women). We obtained contact details for 7095 of them (96.3%). Of these, 3040 responded, hence the response rate was 41.3% (3040/7095) (men 38.8% (1206/3109), women 46.0% (1834/3986)). The 269 members of the cohort who we could not contact included 43 who declined to participate and 226 for whom no contact details could be found. For comparison, the response rates for the surveys of the graduates of 2012, 2009, 2008 and 2005 reported here were, respectively, 45.9%, 46.7%, 49.0% and 61.0%.

### First choice of long-term career: graduates of 2015

The most popular first choice of long-term career was general practice (27.8% of doctors gave it as their untied or tied first choices; [table 1](#)). Specialties that we group as the medical specialties accounted for 26.5% of first choices; these are medical specialties, mainly practised in hospital, comprising those described by the doctors as cardiology, chest medicine, clinical pharmacology, dermatology, endocrinology, gastroenterology, general (internal) medicine, genitourinary medicine, geriatrics, infectious diseases, nephrology, neurology, occupational medicine, rheumatology/rehabilitation and tropical medicine. Two other grouped specialties were selected by over 10% of respondents: the surgical specialties (16.2%) and anaesthesia (15.8%).

A higher percentage of women than men chose general practice (33.3% compared with 19.3%) and obstetrics and gynaecology (7.5% compared with 2.2%). A higher percentage of

men than women chose surgery, anaesthesia and radiology (men: 21.7%, 20.8% and 4.4%, respectively; women: 12.5%, 12.5% and 2.1%).

### Firmness of career intentions: comparing the cohorts

The graduates of 2015 and 2012 were marginally more confident about their career choices than their predecessors; 80.8% of doctors from the 2015 cohort and 83.0% from the 2012 cohort described their choice as definite or probable compared with 77.3% from the 2005–2009 cohorts ( $\chi^2_1=24.8$ ,  $P<0.001$  linear trend; [table 2](#)). In the 2015 and 2012 cohorts, those who chose either radiology or surgery were most confident about their choice ([table 2](#)). Women graduates from 2015 were less certain about their career choices than men ( $\chi^2_1=14.8$ ,  $P<0.001$ ); 77.3% of women described their choice as definite or probable compared with 83.1% of men. The gender difference was not significant in the other cohorts.

More doctors who chose surgery described their choice as a definite or probable choice in more recent cohorts than in earlier cohorts: 86.3% of doctors from the 2015 cohort compared with 80.0% of doctors from the 2005–2009 cohorts ( $\chi^2_1=11.9$ ,  $P<0.001$ ). Doctors in more recent cohorts who chose hospital medical specialties were surer of their choice than were their predecessors; 67.3% of doctors from the 2015 cohort who chose hospital medical specialties regarded their choice as definite or probable compared with 60.6% from the 2005–2009 cohorts ( $\chi^2_1=15.6$ ,  $P<0.001$ ). Doctors who chose other grouped specialties did not show significant trends across the cohorts in their firmness of career intentions ([table 2](#)).

### Comparison with earlier graduation years

[Table 3](#) shows, in emboldened lines, equivalent data on the choices by grouped specialty of the cohort of 2012 and the combined cohorts of 2005, 2008 and 2009.

Comparing the level of choices for each grouped specialty, anaesthesia, psychiatry and radiology showed appreciable upward trends in popularity, while general practice and surgery showed modest declines. Choices for other specialty groupings

**Table 2** Percentage (and number, n) who described their choice as a definite or probable choice, for doctors who chose each specialty group (N): UK medical graduates surveyed 1 year after graduation

Grouped specialty*	Cohort group		Cohort group		Cohort group		Linear trend	
	2015	2012	2015	2012	2005, 2008 and 2009	2005, 2008 and 2009	$\chi^2$ value	P value (df=1)
	%	n/N	%	n/N	%	n/N		
Radiology	86.8	79/91	82.5	47/57	73.2	131/179	7.1	0.008
Surgery	86.3	421/488	85.3	301/353	80.0	1253/1566	11.9	<0.001
Psychiatry	78.7	129/164	73.9	68/92	78.0	256/328	0.0	0.981
Community health	77.8	7/9	33.3	2/6	44.4	4/9	NA	NA
General practice	76.1	638/838	80.4	555/690	75.9	2016/2656	0.6	0.457
Obstetrics and gynaecology	75.0	123/164	82.3	102/124	70.7	352/498	2.6	0.108
Anaesthesia	73.6	349/474	80.4	242/301	72.5	766/1057	0.9	0.356
Radiotherapy and oncology	73.1	57/78	74.1	43/58	68.7	125/182	0.7	0.415
Paediatrics	72.8	190/261	80.3	171/213	74.9	586/782	0.1	0.798
Non-medical	71.4	30/42	43.8	7/16	49.2	31/63	4.6	0.031
Emergency medicine	69.0	118/171	77.7	80/103	61.6	252/409	4.6	0.031
Public health	67.9	19/28	55.2	16/29	61.4	51/83	0.1	0.699
Hospital medical specialties	67.3	533/792	68.9	430/624	60.6	1360/2244	15.6	<0.001
Other medical specialties	66.7	14/21	83.3	10/12	56.9	41/72	1.3	0.257
Pathology	66.0	64/97	76.1	51/67	67.3	152/226	0.0	0.968
All respondents*	80.8	2343/2900	83.0	1831/2206	77.3	6387/8263	24.8	<0.001

Note: Due to low numbers,  $\chi^2$  could not be calculated for community health.

\*Excludes respondents who did not state a specialty choice or the level of certainty of their career choice.

NA, not applicable.

did not show any trend. Statistical test results are shown in table 3 footnotes.

The recent rise in the percentage of respondents who did not nominate a career choice is noteworthy. It increased from 0.2% (combined 2005, 2008 and 2009 cohorts) to 3.8% of respondents from the 2012 cohort and 3.5% of respondents from the 2015 cohort. This pattern was observed for both men and women. A higher percentage of 2015 graduates chose non-medical careers (table 3).

Some grouped specialty trends differed for men and women. There was a decline in first choices for surgery among men (29.5% for the 2005–2009 cohorts to 21.7% for the 2015 cohort;  $\chi^2_1=30.5$ ,  $P<0.001$ ), but not among women (12.3% to 12.5%;  $\chi^2_1<0.1$ ,  $P=0.876$ ). There was a decline in first choices for general practice among women (36.1% for the 2005–2009 cohorts to 33.3% for the 2015 cohort;  $\chi^2_1=6.0$ ,  $P<0.05$ ), but not significantly so among men (22.4% to 19.3%;  $\chi^2_1=3.4$ ,  $P=0.066$ ).

There was a rise in the percentage of first choices for paediatrics among men (4.6% for the 2005–2009 cohorts to 6.8% for the 2015 cohort;  $\chi^2_1=8.2$ ,  $P<0.01$ ) and a decline among women (11.7% to 9.8%;  $\chi^2_1=4.6$ ,  $P<0.05$ ). There was a rise in the percentage of first choices for anaesthesia among men (15.1% for the 2005–2009 cohorts to 20.8% for the 2015 cohort;  $\chi^2_1=17.1$ ,  $P<0.001$ ), but not among women (11.0% to 12.5%;  $\chi^2_1=3.5$ ,  $P=0.61$ ). There was a rise in first choices for oncology among men (1.5% for the 2005–2009 cohorts to 3.0% for the 2015 cohort;  $\chi^2_1=10.6$ ,  $P<0.001$ ), but not among women (2.5% to 2.3%;  $\chi^2_1=0.1$ ,  $P=0.710$ ). There was a rise in first choices for radiology among men (2.9% for the 2005–2009 cohorts to 4.4% for the 2015 cohort;  $\chi^2_1=6.6$ ,  $P<0.01$ ), but not among women (1.7% to 2.1%;  $\chi^2_1=1.2$ ,  $P=0.268$ ). There was a rise in first choices for non-medical specialties among men (1.0% for the 2005–2009 cohorts to 1.9% for the 2015 cohort;  $\chi^2_1=5.8$ ,  $P<0.05$ ), but not among women (0.7% to 1.1%;  $\chi^2_1=3.5$ ,  $P=0.063$ ).

### First choice of career specialty: detailed career choices

As well as the grouped specialty choices, table 3 also shows the numbers and percentages of first choices for each individual career specialty.

We show the details for interested readers, without further comment on most specialties. Within hospital medical specialties, most choices were for general medicine. Similarly, within surgical specialties large numbers of graduates designated general surgery as their first choice 1 year after graduation. Many numbers for individual specialties were small counts; it was, however, noteworthy that there was an increase across the cohorts in the percentage of first choices that were for geriatrics, a decline in choices for cardiology and an increase for ophthalmology.

Online supplementary appendix 1 shows separately for men and women the percentages who chose each individual specialty as a first choice of career. We do not offer detailed analysis of the gender differences, recognising that many of the percentages are based on even smaller counts than those of table 3 and analysis would lack statistical power. But as for table 3, we tabulate the results for the interested reader. We draw attention to the male preponderance of choices for cardiology, nephrology and neurology, and the female preponderance in choices for geriatrics and for dermatology.

### Grouped specialty career choice and clinical medical school attended: graduates of 2015

Table 4 shows, for graduates of 2015, the numbers and percentages of first choices for each grouped specialty subdivided by the location of the clinical medical school attended. For general practice and surgery, we found significant differences by medical school in the level of choices. We have combined all other grouped specialties in table 4, as there were no significant differences for any individual specialty; online supplementary appendix 2 gives a detailed breakdown.

**Table 3** Numbers and percentages of doctors who gave each specialty as their first choice of long-term career: UK medical graduates of 2015, 2012, 2009, 2008 and 2005 surveyed 1 year after graduation: detailed specialty breakdown

Grouped/individual specialty	Graduation year (Numbers)			Graduation year (%)		
	2005, 2008 and 2009 (N=8537)	2012 (N=2313)	2015 (N=3040)	2005, 2008 and 2009 (N=8537)	2012 (N=2313)	2015 (N=3040)
<b>General practice</b>	<b>2669</b>	<b>694</b>	<b>844</b>	<b>31.3</b>	<b>30.0</b>	<b>27.8</b>
<b>Hospital medical specialties</b>	<b>2266</b>	<b>626</b>	<b>805</b>	<b>26.5</b>	<b>27.1</b>	<b>26.5</b>
Cardiology	285	77	71	3.3	3.3	2.3
Chest medicine	188	45	52	2.2	1.9	1.7
Clinical pharmacology	9	1	1	0.1	<0.1	<0.1
Dermatology	125	43	59	1.5	1.9	1.9
Endocrinology	75	15	23	0.9	0.6	0.8
Gastroenterology	184	52	56	2.2	2.2	1.8
General medicine	747	165	257	8.8	7.1	8.5
Genitourinary medicine	46	24	26	0.5	1.0	0.9
Geriatrics	134	73	94	1.6	3.2	3.1
Infectious diseases	112	29	39	1.3	1.3	1.3
Nephrology	76	26	34	0.9	1.1	1.1
Neurology	140	29	36	1.6	1.3	1.2
Occupational medicine	1	2	3	<0.1	0.1	0.1
Rheumatology/Rehabilitation	77	29	33	0.9	1.3	1.1
Tropical medicine	26	7	6	0.3	0.3	0.2
<b>Surgery</b>	<b>1573</b>	<b>358</b>	<b>492</b>	<b>18.4</b>	<b>15.5</b>	<b>16.2</b>
Cardiac surgery	19	8	18	0.2	0.3	0.6
Ear, nose and throat	117	35	47	1.4	1.5	1.5
General surgery	517	75	167	6.1	3.2	5.5
Neurosurgery	86	21	23	1.0	0.9	0.8
Ophthalmology	138	38	71	1.6	1.6	2.3
Oral and maxillofacial surgery	45	12	16	0.5	0.5	0.5
Trauma and orthopaedic surgery	323	76	95	3.8	3.3	3.1
Paediatric surgery	55	16	14	0.6	0.7	0.5
Plastic surgery	163	40	36	1.9	1.7	1.2
Urology	64	19	21	0.7	0.8	0.7
Vascular surgery	39	7	9	0.5	0.3	0.3
<b>Anaesthesia</b>	<b>1063</b>	<b>301</b>	<b>480</b>	<b>12.5</b>	<b>13.0</b>	<b>15.8</b>
Anaesthesia	746	212	367	8.7	9.2	12.1
Intensive care/anaesthesia	349	114	146	4.1	4.9	4.8
<b>Paediatrics</b>	<b>786</b>	<b>216</b>	<b>261</b>	<b>9.2</b>	<b>9.3</b>	<b>8.6</b>
<b>Emergency medicine</b>	<b>411</b>	<b>105</b>	<b>171</b>	<b>4.8</b>	<b>4.5</b>	<b>5.6</b>
<b>Psychiatry</b>	<b>331</b>	<b>95</b>	<b>165</b>	<b>3.9</b>	<b>4.1</b>	<b>5.4</b>
Child/adolescent psychiatry	33	4	3	0.4	0.2	0.1
Forensic psychiatry	17	6	1	0.2	0.3	<0.1
General psychiatry	272	84	160	3.2	3.6	5.3
Learning disabilities	2	0	0	<0.1	0.0	0.0
Psychogeriatrics	10	0	0	0.1	0.0	0.0
Psychotherapy	5	2	0	0.1	0.1	0.0
<b>Obstetrics and gynaecology</b>	<b>501</b>	<b>127</b>	<b>164</b>	<b>5.9</b>	<b>5.5</b>	<b>5.4</b>
<b>Pathology</b>	<b>228</b>	<b>67</b>	<b>97</b>	<b>2.7</b>	<b>2.9</b>	<b>3.2</b>
Forensic medicine	16	0	5	0.2	0.0	0.2
General pathology	22	4	8	0.3	0.2	0.3
Genetics	25	10	9	0.3	0.4	0.3
Haematology	101	35	46	1.2	1.5	1.5
Histopathology	27	7	12	0.3	0.3	0.4
Immunology	7	3	7	0.1	0.1	0.2
Microbiology	36	8	12	0.4	0.3	0.4
<b>Radiology</b>	<b>180</b>	<b>57</b>	<b>92</b>	<b>2.1</b>	<b>2.5</b>	<b>3.0</b>
<b>Radiotherapy and oncology</b>	<b>182</b>	<b>58</b>	<b>78</b>	<b>2.1</b>	<b>2.5</b>	<b>2.6</b>
<b>Public health</b>	<b>83</b>	<b>29</b>	<b>28</b>	<b>1.0</b>	<b>1.3</b>	<b>0.9</b>
<b>Community health</b>	<b>10</b>	<b>6</b>	<b>9</b>	<b>0.1</b>	<b>0.3</b>	<b>0.3</b>
Family planning	8	6	8	0.1	0.3	0.3

Continued

Table 3 Continued

Grouped/individual specialty	Graduation year (Numbers)			Graduation year (%)		
	2005, 2008 and 2009 (N=8537)	2012 (N=2313)	2015 (N=3040)	2005, 2008 and 2009 (N=8537)	2012 (N=2313)	2015 (N=3040)
General Community health	2	0	1	<0.1	0.0	<0.1
<b>Other medical specialties</b>	<b>72</b>	<b>13</b>	<b>21</b>	<b>0.8</b>	<b>0.6</b>	<b>0.7</b>
Not stated	18	88	105	0.2	3.8	3.5
<b>Non-medical</b>	<b>65</b>	<b>16</b>	<b>44</b>	<b>0.8</b>	<b>0.7</b>	<b>1.4</b>

Notes: The grouped specialty total in bold may be lower than the total of each individual specialty belonging to that group: if a respondent gave 'Anaesthetics' as their tied first choice with 'Intensive care/anaesthesia', this would only result in one count at the grouped specialty level. Linear trend statistics across the cohorts: general practice ( $\chi^2_1=12.9$ ,  $P<0.001$ ), hospital medical specialties ( $\chi^2_1=0.0$ ,  $P=0.961$ ), surgery ( $\chi^2_1=11.0$ ,  $P<0.001$ ), anaesthesia ( $\chi^2_1=19.9$ ,  $P<0.001$ ), paediatrics ( $\chi^2_1=0.8$ ,  $P=0.367$ ), emergency medicine ( $\chi^2_1=2.3$ ,  $P=0.129$ ), psychiatry ( $\chi^2_1=12.0$ ,  $P<0.001$ ), obstetrics and gynaecology ( $\chi^2_1=1.1$ ,  $P=0.295$ ), pathology ( $\chi^2_1=2.3$ ,  $P=0.133$ ), radiology ( $\chi^2_1=8.2$ ,  $P=0.004$ ), radiotherapy and oncology ( $\chi^2_1=2.3$ ,  $P=0.132$ ), public health ( $\chi^2_1=0.0$ ,  $P=0.967$ ), community health ( $\chi^2_1=4.7$ ,  $P=0.030$ ), other medical specialties ( $\chi^2_1=1.2$ ,  $P=0.283$ ), not stated ( $\chi^2_1=206.7$ ,  $P<0.001$ ) and non-medical ( $\chi^2_1=9.7$ ,  $P=0.002$ ).

Graduates from the medical schools in London and Oxbridge medical schools (ie, Oxford and Cambridge schools, combined) were less likely than others to choose general practice; graduates from Wales and 'Rest of England' were more likely to do so ( $\chi^2_5=52.4$ ,  $P<0.001$ ). This difference was more pronounced among women ( $\chi^2_5=34.3$ ,  $P<0.001$ ); among men the difference was only marginally significant ( $\chi^2_5=13.6$ ,  $P=0.018$ ).

Female graduates from London medical schools were more likely to choose surgery than women from other medical schools ( $\chi^2_5=26.1$ ,  $P<0.001$ ); this difference was not observed among men ( $P=0.810$ ).

## DISCUSSION

### Main findings

In the qualification cohort of 2015, 1 year after graduation, just over a quarter of first choices were for general practice and a quarter for the hospital medical specialties. Proportionately more women than men chose general practice and obstetrics and gynaecology, and more men than women chose surgery, anaesthesia and radiology.

Comparing the level of choices for each grouped specialty, anaesthesia, psychiatry, radiology and non-medical careers showed an upward trend in popularity, while general practice and surgery showed a downward trend. The rise in the number of doctors replying 'don't know' and being unable to specify a career choice is noteworthy and may be related to recent contractual uncertainties about future jobs, as discussed below.

Paediatrics rose in popularity among men but declined among women. Anaesthesia, oncology, radiology and 'non-medical' all rose in popularity among men, but showed no change among women. There was a decrease in interest recently, among women, for general practice, and no evidence of an increase in interest among men. Interest in surgery has also declined recently among men.

Most specialty choices within the hospital medical specialties were for general medicine, and within surgery were for general surgery. There was an increase in interest in geriatric medicine among recent graduates. Choices for general practice were highest among graduates from Wales and English medical schools outside London and Oxbridge.

Recent graduates were more certain about their career choices than their predecessors. Doctors choosing radiology and surgery were more certain of their choice than doctors choosing other specialties.

Care must be taken in interpretation of results from a single cohort, although we do have results from previous cohorts for comparison. Decisions about career choice may be affected by the doctors' perceptions of many factors, personal and

environmental. Personal factors include self-reflection and taking a view about the specialty to which one is essentially suited, as well as practical considerations such as the nature of the work and working conditions, perceived work-life balance, and future personal or financial prospects. External factors include

**Table 4** Clinical medical school attended and first choice of long-term career (%): UK medical graduates of 2015, surveyed in 2016

Clinical medical school attended	First choice of career (row percentages)		
	General practice	Surgery	All others combined
<b>Men</b>	<b>P=0.018</b>	<b>P=0.810</b>	<b>P=0.118</b>
Oxbridge (N=95)	9.5	22.1	76.8
London (N=304)	16.8	22.0	66.4
Rest of England (N=606)	21.6	21.5	69.5
Scotland (N=121)	16.5	24.0	66.9
Wales (N=47)	29.8	23.4	55.3
Northern Ireland (N=33)	24.2	12.1	66.7
Total (N=1206)	19.3	21.7	68.4
<b>Women</b>	<b>P&lt;0.001</b>	<b>P&lt;0.001</b>	<b>P=0.329</b>
Oxbridge (N=92)	21.7	12.0	73.9
London (N=370)	<b>24.9</b>	<b>19.2</b>	67.8
Rest of England (N=984)	<b>37.9</b>	<b>10.5</b>	64.9
Scotland (N=229)	28.4	13.5	67.7
Wales (N=107)	43.0	4.7	68.2
Northern Ireland (N=52)	28.8	17.3	61.5
Total (N=1834)	33.3	12.5	66.4
<b>All</b>	<b>P&lt;0.001</b>	<b>P=0.007</b>	<b>P=0.067</b>
Oxbridge (N=187)	<b>15.5</b>	17.1	75.4
London (N=674)	<b>21.2</b>	<b>20.5</b>	67.2
Rest of England (N=1590)	<b>31.7</b>	14.7	66.7
Scotland (N=350)	24.3	17.1	67.4
Wales (N=154)	<b>39.0</b>	10.4	64.3
Northern Ireland (N=85)	27.1	15.3	63.5
Total (N=3040)	27.8	16.2	67.2

Notes: The percentages given are for tied and untied first choices. The table excludes 105 'not stated' responses. Row percentages add to more than 100% because doctors were allowed to specify up to three first choices of equal preference. See online supplementary appendix 2 for breakdown of results for the 'All others combined' column. Percentages whose adjusted residuals are greater than  $\pm 2.58$  are shown in bold.

knowledge about the demand for doctors in different specialties, the opportunities for training and the eventual career prospects.

Our results offer only limited encouragement in respect of supply to the shortage specialties mentioned in the Introduction section, namely general practice, emergency medicine, general medicine, radiology, pathology and psychiatry. We report modest rises in the level of choices for radiology, pathology and psychiatry, although general medicine and emergency medicine choices remained largely static and general practice choices appear, if anything, to have declined, despite well-publicised national initiatives to increase recruitment and the creation of additional training places.

For many years now, the percentage of newly qualified doctors who want a career in general practice has been well below the 50% deemed necessary to meet service needs.<sup>8</sup> Our surveys suggest that too few junior doctors leave medical school enthused sufficiently about a career in general practice to want to pursue it. As we have noted elsewhere,<sup>9</sup> this should not be taken to imply that careers in general practice are unattractive, but that careers in other branches of medicine are more attractive. We noted in 2006<sup>3</sup> that there was 'no evidence that there has been any increase in interest recently in general practice as a career among newly qualified doctors' and that conclusion remains justified. We have also questioned whether medical schools should have strategies for training preferentially for careers in particular branches of medical practice, notably for careers in general practice.<sup>10</sup> We commented then that we thought this would not be preferred by either medical students or by medical schools, but given the seemingly intractable issue of a shortfall of doctors wanting careers in general practice, we suggest now that it might be worth considering.

### Strengths and limitations

This study investigated the career choices of a large number of doctors from across the UK over a 10-year period. The strengths of our study include its ongoing data collection covering many years, its large size, its inclusion of all UK medical schools and its independence. We surveyed the doctors at a key decision-making time in terms of choosing their future careers: between June and October 2016 for the graduates of 2015. We note that a response rate of 41% is somewhat low and is lower than in our previous year 1 surveys. Reduced survey research participation in recent years has been reported elsewhere among health professionals and other populations.<sup>11 12</sup> However, our own studies have obtained high response rates from older doctors in recent years.<sup>13</sup> For example, a recent survey by us of mainly retired doctors in the UK obtained a response rate of 85%. We suspect, therefore, that there is a generational factor in play in non-response to surveys.<sup>14</sup>

### Comparison with existing literature and future work

The declining trend in first choices for general practice between the cohorts of 1993 and 2002 which we found in a previous study has continued in the current study (between the cohorts of 2005 and 2015).<sup>3</sup> Other research has found that general practice has declined in attractiveness relative to hospital practice.<sup>9</sup> The decrease in interest in general practice we observed was more evident among women than men. This decline among women is in line with other research, which has found that while female general practitioners in particular value a career that offers 'compatibility with family life', many doctors are leaving general practice due to high workload and too much administration.<sup>15-18</sup> In particular, the trans-European study by Roos and colleagues<sup>17</sup>

showed many similarities between the views of UK trainees and recent qualifiers in general practice and their counterparts in other European countries. The USA is also experiencing difficulties in sustaining sufficient medical graduate interest in general practice to meet national needs.<sup>19</sup>

We observed in the 2015 cohort a rise in the number of doctors unable to specify a career specialty choice. Junior doctors based in England have reported elsewhere that contractual uncertainty has made them switch specialty choice or made them uncertain about switching specialty.<sup>20</sup>

To date, in addition to papers covering a range of specialties within individual cohorts,<sup>3-6</sup> we have written in detail on career choices for individual specialties including general practice, emergency medicine, geriatric medicine, cardiology, surgery, psychiatry, public health, the hospital medical specialties, trauma and orthopaedic surgery, ophthalmology, paediatrics, radiology, obstetrics and gynaecology, pathology, and anaesthesia.<sup>8 21-33</sup> The survey reported here is the last that our group will undertake, as the Department of Health, the funding body, will shortly cease funding the work. It is therefore unlikely that there will be future data on the career intentions, nationally, of junior UK-trained doctors soon after graduating from medical school. Other organisations, like the British Medical Association and individual medical schools, should be encouraged to undertake future studies of newly qualified doctors' career intentions.

### IMPLICATIONS/CONCLUSIONS

There is no evidence in these surveys of an increase in the number of first-year postgraduate doctors who express a career choice for general practice. Further work might include focus groups of junior doctors to explore in-depth views on the perceived strengths and weaknesses of the administrative and clinical features of working in general practice in the UK, and whether there is anything distinctive to be learnt from Welsh medical schools, which had the highest levels of choices for general practice in the UK in this study. Focus groups would need to be large enough to ensure that representative views were captured.

Similarly, our results do not offer comfort with regard to supply issues in other current shortage specialties in the UK, with the possible exceptions of radiology and psychiatry, which show modest evidence of increase in interest; similar further work might address the underlying issues.

#### Main messages

- ▶ Career choices for general practice remain low and comprised a third of women and a fifth of men in this cohort.
- ▶ Other shortage specialties—emergency medicine, general medicine, radiology, pathology and psychiatry—do not show evidence of growth in popularity.
- ▶ Large gender differences remain in choices for careers in surgery and anaesthesia.

#### Current research questions

- ▶ Why have initiatives to increase gender balance in certain specialties been unsuccessful to date?
- ▶ Can focus groups offer insight into junior doctors' perceptions of careers in general practice?
- ▶ What factors are driving the increase in the number of doctors unable to make a career choice?

Large gender differences in career choices remain, particularly in choices for general practice, surgery and anaesthesia. Further research could seek to identify why the various initiatives designed to increase gender balance have to date been unsuccessful.

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