Career destinations seven years on among doctors who qualified in the United Kingdom in 1988: postal questionnaire survey

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Abstract

Objective To report the career choices and career destinations in 1995 of doctors who qualified in the United Kingdom in 1988.
Design Postal questionnaire.
Setting United Kingdom.
Subjects All doctors who qualified in the United Kingdom in 1988.
Main outcome measures Current employment.
Results Of the 3724 doctors who were sent questionnaires, eight had died and three declined to participate. Of the remaining 3713 doctors, 2885 (77.7%) replied. 16.9% (608/3593; 95% confidence interval 16.1% to 17.8%) of all 1988 qualifiers from medical schools in Great Britain were not working in the NHS in Great Britain in 1995 compared with 17.0% (624/3674; 16.1% to 17.9%) of the 1983 cohort in 1990. The proportion of doctors working in general practice was lower than in previous cohorts. The percentage of women in general practice (44.3% (528/1192)) substantially exceeded that of men (33.1% (443/1340)). 53% (276/522) of the women in general practice and 20% (98/490) of the women in hospital specialties worked part time.
Conclusions Concerns about recruitment difficulties in general practice are justified. Women are now entering general practice in greater numbers than men. There is no evidence of a greater exodus from the NHS from the 1988 qualifiers than from earlier cohorts.

Introduction

There is continued interest in the career destinations of junior doctors in the United Kingdom.[1] Data have already been published on doctors who qualified in 1974, 1977, and 1983.[2 3] To understand career progression in a more recent cohort we undertook a survey of all doctors who qualified in the United Kingdom in 1988, and we compared their career progression with those who qualified in 1977 and 1983.[2] We used capture-recapture analysis (see appendix) to give more precise estimates of loss from the NHS than have ever previously been made.[4]

Subjects and methods

Our methods are described elsewhere.[2 3] We identified doctors from lists of qualifiers from UK medical schools in 1988. We sent up to four reminder mailings to non-respondents, and we analysed career destinations as they were on 30 September 1995. Fourteen specialty groups were defined.

Since 1988 the Department of Health has kept a record of doctors working in the NHS in Great Britain. We used this record to supplement our data to estimate loss from the NHS in Great Britain. Doctors with honorary NHS contracts—notably those in university posts—were counted as being in the NHS. We compared 1988 qualifiers in 1995 with 1983 qualifiers in 1990, at the same time from qualification.

Results

In 1988, 3739 doctors qualified. We excluded six doctors who qualified but did not register and nine doctors for whom we had no recent address. Of the 3724 doctors who were sent questionnaires, eight had died and three declined to participate, leaving 3713 in the study. Of these, 2039 (54.9%) were men and 1674 (45.1%) were women. The overall response rate was 77.7% (n = 2885): 73.4% (n = 1497) of the men and 82.9% (n = 1388) of the women responded ($\chi^2 = 47.3$, df = 1, $P < 0.001$). The employment status of 1988 qualifiers in 1995 and of 1983 qualifiers in 1990 was very similar (table 1).

Non-response rendered our data incomplete. Comparison of our replies from doctors with the Department of Health record showed that its record was also incomplete. Using capture-recapture (see appendix) we estimated a loss from the NHS in Great Britain of 16.9% (608/3593, 95% confidence interval 16.1% to 17.8%) of the qualifiers in Great Britain in 1988, which comprised 16.5% (269/1632) of the women and 17.7% (347/1961) of the men. For the 1983 cohort in 1990 we estimated a loss from the NHS in Great Britain of 17.0% (624/3674, 16.1% to 17.9%), which comprised 18.8% (264/1401) of the women and 16.0% (364/2273) of the men.

There was a small increase over time in the percentage of male respondents outside medical employment, whether in the United Kingdom or abroad, seven years after qualification (table 1): 1.8% (27/1533) and 3.0% (45/1480) from the 1983 and 1988 cohorts respectively ($\chi^2 = 4.7$, df = 1, $P = 0.03$). The women showed no change: 8.3% (87/1044) and 8.6% (119/1383) from the 1983 and 1988 cohorts respectively ($\chi^2 = 0.03$, $P = 0.87$).

Of 2532 respondents in medicine in the United Kingdom seven years after qualification (table 2), 971 (38.3%) were in general practice compared with 45.9% (1054/2296) of the 1983 cohort. More women than men were in general practice, psychiatry, paediatrics, and community health, and more men than women were in the surgical specialties and the hospital medical specialties (all $P < 0.01$ using χ^2 test (df = 1), table 2).

The difference between the percentage of women and of men in general practice seven years after qualification increased in successive cohorts: the difference was 2.9% (46.0% of women, 43.1% of men) in the 1977 cohort, 7.6% (50.5% of women, 42.9% of men) in the 1983 cohort, and 11.3% (44.3% of women, 33.0% of men) in the 1988 cohort.

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Table 1 Employment status in September 1995 of respondents who qualified in the United Kingdom in 1988, with comparable data from 1983 qualifiers in 1990. Values are numbers (percentages)

	1988 qualifiers in 1995*			1983 qualifiers in 1990†		
Employment sector	**Men (n=1480)**	**Women (n=1383)**	**Total (n=2863)**	**Men (n=1533)**	**Women (n=1044)**	**Total (n=2577)**
Respondents in United Kingdom	1377 (93.0)	1287 (93.1)	2664 (93.0)	1428 (93.2)	975 (93.4)	2403 (93.2)
In medical employment:	1340 (90.5)	1192 (86.2)	2532 (88.4)	1401 (91.4)	892 (85.4)	2293 (89.0)
NHS	1065 (72.0)	1061 (76.7)	2126 (74.3)	1133 (73.9)	784 (75.1)	1917 (74.4)
Universities and research	212 (14.3)	109 (7.9)	321 (11.2)	195 (12.7)	78 (7.5)	273 (10.6)
Other public sector‡	1 (0.1)	6 (0.4)	7 (0.2)	2 (0.1)	5 (0.5)	7 (0.3)
Non-public sector	17 (1.1)	9 (0.7)	26 (0.9)	21 (1.4)	19 (1.8)	40 (1.6)
Her Majesty's armed forces§	45 (3.0)	7 (0.5)	52 (1.8)	50 (3.3)	6 (0.6)	56 (2.2)
Other:	37 (2.5)	95 (6.9)	132 (4.6)	27 (1.8)	83 (8.0)	110 (4.3)
Non-medical employment	12 (0.8)	13 (0.9)	25 (0.9)	14 (0.9)	6 (0.6)	20 (0.8)
Not in paid employment	25 (1.7)	82 (5.9)	107 (3.7)	13 (0.8)	77 (7.4)	90 (3.5)
Respondents abroad	103 (7.0)	96 (6.9)	199 (7.0)	105 (6.8)	69 (6.6)	174 (6.8)
In medical employment	95 (6.4)	72 (5.2)	167 (5.8)	105 (6.8)	65 (6.2)	170 (6.6)
Other:						
Non-medical employment	3 (0.2)	1 (0.1)	4 (0.1)	0	0	0
Not in paid employment	5 (0.3)	23 (1.7)	28 (1.0)	0	4 (0.4)	4 (0.2)

*Excludes 22 respondents who gave no employment details for 1995.
†Excludes data from 141 doctors who responded in 1994 but did not provide details of work for 1990.
‡Includes doctors in the civil service, public health laboratory service, and public sector occupational health.
§Respondents defined as UK doctors regardless of geographical location.

Respondents were asked to recall their first choice of career on qualifying. A first choice for a career in general practice was given by 40% (754/1905), 30% (411/1360), and 17% (227/1297) of the men from the 1983, 1988, and 1993 cohorts respectively,[6] whereas in women the corresponding percentages were 52% (662/1263), 40% (500/1246), and 34% (450/1324).

NHS contracts in hospital specialties were held by 1118 doctors in the 1988 cohort, of whom 19.8% (124/628) of men and 19.9% (96/490) of women had reached senior registrar status or above (excluding locum appointments) by September 1995. Only seven were consultants. In general practice, 72% (301/419) of men and 61% (317/522) of women were principals. The 118 male non-principals comprised 67 locums, 41 trainees, 7 assistants, 2 retainees, and 1 who gave no grade. The 205 female non-principals comprised 96 locums, 45 trainees, 44 assistants, and 20 retainees.

In the hospital specialties, 20.0% (98/490) of women and 1.4% (9/628) of men were working on a flexible or part time basis whereas in general practice the corresponding fiures were 53% (276/522) and 11% (44/419).

Table 2 Specialty profile in September 1995 of respondents from 1988 qualifiers in medical employment in United Kingdom. Values are numbers (percentages)

Specialty group	**Men (n=1340)**	**Women (n=1192)**	**Total (n=2532)**	**P value ***
General practice	443 (33.0)	528 (44.3)	971 (38.3)	<0.01
Medical specialties	194 (14.5)	114 (9.6)	308 (12.1)	<0.01
Paediatrics	46 (3.4)	78 (6.5)	124 (4.9)	<0.01
Accident and emergency	24 (1.8)	37 (3.1)	61 (2.4)	<0.05
Surgical specialties	212 (15.8)	40 (3.4)	252 (9.9)	<0.01
Obstetrics and gynaecology	57 (4.2)	48 (4.0)	105 (4.1)	NS
Anaesthetics	138 (10.3)	89 (7.5)	227 (9.0)	<0.05
Radiology	40 (3.0)	23 (1.9)	63 (2.5)	NS
Clinical oncology	11 (0.8)	21 (1.8)	32 (1.3)	NS
Pathology	40 (3.0)	27 (2.3)	67 (2.6)	NS
Psychiatry	84 (6.3)	115 (9.6)	199 (7.9)	<0.01
Community health	7 (0.5)	30 (2.5)	37 (1.5)	<0.01
Public health medicine	16 (1.2)	21 (1.8)	37 (1.5)	NS
Other specialties	28 (2.2)	21 (1.8)	49 (2.0)	NS

NS=not significant (P≥0.05).
*χ^2 test for sex difference in percentage working in each specialty.

Discussion

This is the first cohort since that of 1983 to be surveyed by us several years after qualifying. For 1983 and 1988 respondents, similar percentages were found for those working in medical practice, abroad, or in non-medical employment, and not in paid employment. We estimate that 16.9% (608/3593) of 1988 qualifiers from Great Britain in 1995 and 17.0% (624/3674) of 1983 qualifiers in 1990 were not working in the NHS in Great Britain. These similarities matter because we have not wanted to attach undue weight to data from the 1983 cohort alone.

Important differences were apparent: 38.3% (971/2532) of 1988 respondents in UK medicine were working in general practice in 1995 compared with 46% (1054/2293) of 1983 respondents in 1990 and 44% (1068/2428) of 1977 respondents in 1984. Consequently, the percentage of respondents working in other specialties was generally higher. Allowing for this, compared with the 1983 qualifiers, recruitment was higher to paediatrics and accident and emergency

Key messages

- This study reports the career progress to September 1995 of doctors who qualified in 1988
- Loss from the British NHS, at 16.9% (95% confidence interval, 16.1% to 17.8%), was no greater than among earlier qualifiers at the same time after qualification
- The proportion of doctors working in general practice (38%) was lower than in earlier cohorts studied
- In this generation of doctors, women in general practice now outnumber men
- Fifty three per cent of the women in general practice and 20% of the women in hospital specialties were working on a part time or flexible basis

and lower to pathology than expected from the general increase in the hospital specialties.

This cohort was surveyed for the first time several years into the qualifiers' medical careers. We are cautious about interpreting recalled career choices because they may be influenced by the passage of time. None the less, the decline in choice of general practice as a first career between 1983 and 1988 and between 1988 and 1993 suggests that interest in general practice among newly qualified doctors has fallen gradually.

We showed that, by 1995, the number of 1988 qualifiers who had left the NHS was no higher than that of 1983 qualifiers by 1990. However, there was a small but significant increase in the percentage of male doctors who were not in medical practice.

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Contributors: Both authors designed the survey. TWL coordinated the conduct of the study, analysed the data, wrote the first draft of the manuscript, and contributed to further drafts. MJG suggested the use of capture-recapture methods and contributed to further drafts of the manuscript. Both authors will act as guarantors for the paper.

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Competing interests: None declared.

Appendix

Capture-recapture estimates of numbers of 1988 qualifiers working in NHS in Great Britain in 1995 were calculated, as shown in the table (above right), from numbers of doctors known to the Medical Careers Research Group and to the Department of Health.

Confidence intervals for the number of doctors in the NHS were obtained by calculating the standard error of d using the formula

$$SE = \sqrt{\frac{bc\,(a+b+1)(a+c+1)}{(a+1)^2(a+2)}}$$

Capture-recapture estimates of numbers of 1988 qualifiers working in NHS in Great Britain in 1995

Group	Denoted by	Men	Women	Total
Known to MCRG and DoH	a	990	815	1805
Known to MCRG but not to DoH	b	228	314	542
Known to DoH but not to MCRG	c	322	169	491
Estimated additional doctors in NHS*	$d = bc/(a+1)$	74	65	147
Estimated total	$T = a + b + c + d$	1614	1363	2985
Known total population (cohort size)	P	1961	1632	3593
Participation rate (%)	$R = 100\ T/P$	82.3	83.5	83.1
Loss (%)†	$L = 100 - R$	17.7	16.5	16.9

MCRG=Medical Careers Research Group; DoH=Department of Health.
*Unrecorded by both MCRG and DoH. The total estimated additional doctors (n=147) does not exactly equal the sum of separate estimates for men (n=74) and women (n=65). This is a consequence of the higher response rate to our surveys from women than from men. Estimates for subpopulations in capture-recapture methods do not total to estimates for pooled populations, if individuals in each subpopulation differ in their likelihood of being observed.[6] The effect on estimated loss rates is small.
†Estimated using known cohort size of qualifiers in Great Britain.

and multiplying by 1.96 to give the half width of a 95% confidence interval.

For example, the half width of the confidence interval for the total of 1988 qualifiers in the NHS in 1995 is 31 doctors; the 95% confidence interval for the total is therefore 2985±31—that is, 2954 to 3016, or 82.2% to 83.9% of the 1988 cohort of 3593 doctors.

1 Medical Workforce Standing Advisory Committee. *Planning the medical workforce—third report*. London: Department of Health, 1997.
2 Parkhouse J. *Doctors' careers: aims and experiences of medical graduates*. London: Routledge, 1991.
3 Lambert TW, Goldacre MJ, Parkhouse J, Edwards C. Career destinations in 1994 of United Kingdom medical graduates of 1983: results of a questionnaire survey. *BMJ* 1996;312:893-7.
4 Hook EB, Regal RR. The value of capture-recapture methods even for apparent exhaustive surveys. *Am J Epidemiol* 1992;135:1060-7.
5 Lambert TW, Goldacre MJ, Edwards C, Parkhouse J. Career preferences of doctors who qualified in the United Kingdom in 1993 compared with those of doctors qualifying in 1974, 1977, 1980 and 1993. *BMJ* 1996;313:19-24.
6 Hook EB, Regal RR. Effect of variation in probability of ascertainment by sources ("variable catchability") upon "capture-recapture" estimates of prevalence. *Am J Epidemiol* 1993;137:1148-66.

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Reducing maternal mortality: reaudit of recommendations in reports of confidential inquiries into maternal deaths

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The development of clinical audit over the past 10 years has led to questioning of the role of the triennial reports of the confidential inquiries into maternal deaths. Recently, the maternal death rate has been 6-7 per 100 000 maternities, with the proportion of deaths attributed to substandard care remaining around 40%. To investigate the uptake of the recommendations of the confidential inquiries into maternal deaths Hibbard and Milner audited the facilities in consultant maternity units in the United Kingdom in 1993, including the availability of clinical guidelines for two major maternal complications, eclampsia and haemorrhage.[1] This audit followed the publication of *Maternal Mortality—the Way Forward*[2] and was published around the time the Royal College of Obstetricians and Gynaecologists produced *Deriving Standards from the Maternal Mortality Report*[3] and the Department of Health the *Report on Confidential Enquiries into Maternal Deaths in the United Kingdom 1988-1990*.[4] We investigated whether these national initiatives had had any effect on the implementation of the recommendations.

Subjects, methods, and results

A questionnaire was circulated during November 1996 to the heads of midwifery at all 325 hospitals listed on the unit's database. The response rate was 100% after one postal reminder and one telephone call to

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