

Key messages

- Bullying is widespread among primary school children and causes much distress
- Many children report having frequent headaches or tummy aches, that they sleep poorly, wet the bed, or feel sad
- Children who report these symptoms also report being bullied substantially more often than do their peers
- Although it is not clear whether the association is causal, health professionals seeing such children should ask about bullying

bullied. If bullying is reported, whether or not it is causally related to the presenting complaint, it should be taken seriously.

We thank the founding members and steering group of the Newham 8-plus health survey, Margaret Baker and the school

nurses for their enthusiasm, and Rumana Omar and Sandra Eldridge for statistical advice.

Funding: Newham Health Authority (now East London and the City Health Authority) and Newham Community Health Services (now NHS Trust).

Conflict of interest: None.

- 1 Olweus D. *Bullying at school. What we know and what we can do*. Oxford: Blackwell, 1993.
- 2 O'Moore AM, Hillery B. Bullying in Dublin schools. *Irish Journal of Psychology* 1989;10:426-41.
- 3 Whitney I, Smith PK. A survey of the nature and extent of bullying in junior/middle and secondary schools. *Educational Research* 1993;35:3-25.
- 4 Boulton MJ, Underwood K. Bully/victim problems among middle school children. *Br J Educ Psychol* 1992;62:73-87.
- 5 Sharp S, Smith PK. Bullying in UK schools: The DES Sheffield bullying project. *Early Child Development and Care* 1992;77:47-55.
- 6 Erling R. Bullying: the Scandinavian research tradition. In: Delwyn TP, Lane DA, eds. *Bullying in schools*. Stoke on Trent: Trentham Books, 1994:21-32.
- 7 Cornfield J. A statistical problem arising from retrospective studies. In: Neyman J, ed. *Proceedings of the third Berkeley symposium, IV, Berkeley*. Berkeley: University of California Press, 1956:133-48.1
- 8 Gardner SB, Winter PD, Gardner MJ. *CLA Confidence Interval Analysis*. London: BMJ Publishing, 1991.
- 9 Dean AG, Dean JA, Coulombier D, Brendal KA, Smith DC, Burton AH, et al. *Epi Info, version 6: a word processing, database, and statistics program for epidemiology on microcomputers*. Atlanta, Georgia: Centers for Disease Control and Prevention, 1994.
- 10 Ahmad YS, Smith PK. Behavioural measures review. No 1. Bullying in schools. *Newsletter of the Association of Child Psychology and Psychiatry* 1990; 15:26-7.

(Accepted 12 April 1996)

Career preferences of doctors who qualified in the United Kingdom in 1993 compared with those of doctors qualifying in 1974, 1977, 1980, and 1983

Trevor W Lambert, Michael J Goldacre, Carol Edwards, James Parkhouse

Abstract

Objective—To report the career preferences of doctors who qualified in the United Kingdom in 1993 and to compare their choices with those of earlier cohorts of qualifiers.

Design—Postal questionnaires with structured questions, including questions about choice of future long term career, were sent to doctors a year after qualification.

Setting—United Kingdom.

Subjects—All medical qualifiers of 1993, comparing their replies with those from earlier studies of the qualifiers of 1974, 1977, 1980, and 1983.

Main outcome measures—Choice of future long term career and certainty of choice expressed at the end of the first year after qualification.

Results—Questionnaires were sent to 3657 doctors. 2621 (71.7%) replied. Of the 2621 respondents, 70.5% (1849) stated that their first preference was for a career in hospital practice, 25.8% (677) specified general practice, 1.0% (25) specified public health medicine or community health, 1.4% (36) specified careers outside medicine, and 1.3% (34) did not state a choice. By contrast, 44.7% (1416/3168) of the doctors in the 1983 cohort had specified that their first preference was general practice. Among the 1993 qualifiers, general practice was the first career choice of 17.5% of men (227/1297) and 34.0% of women (450/1324). Only 7.4% of men (96/1297) stated that they definitely wanted to enter general practice. Only 7.8% (103/1324) of women qualifiers in 1993 expressed a career preference for surgical specialties. Within hospital practice, comparing 1993 with 1983, choices for the medical specialties and for accident and emergency medicine rose and those for pathology fell. Women were less definite than men about their choice of future long term career.

Conclusions—If the 1993 cohort is typical of the current generation of young doctors, there has been a substantial shift away from general practice as a career choice expressed at the end of the preregistration year. General practice was much more popular among women than men. Few women opted for surgery. The sex imbalance in the percentage of doctors who choose different mainstreams of medical practice seems set to continue.

Introduction

Doctors' career plans after qualification are a fundamental issue for all those concerned with medical education and providing medical services. Since our last national survey of doctors' career choices in the United Kingdom, in 1983,¹ the NHS has undergone important changes. These include the introduction of the new contract in general practice and the organisational reforms of *Working for Patients*.^{2,3} Other changes since 1983 include an increase in time spent by medical students in general practice and an increase in the percentage of newly qualified doctors who are women and may not make the same career choices as men. A major current change, which may influence career choices in the future, is the implementation of shorter, more structured training programmes in hospital practice in the United Kingdom.⁴

We studied the career preferences of doctors qualifying from United Kingdom medical schools in 1993 at the end of their preregistration year and compared their career choices with those of qualifiers of earlier years.

Subjects and methods

The study population comprised all subjects qualifying in medicine in the United Kingdom in 1993 who were identified from listings compiled by the General

Medical Careers Research Group, Unit of Health Care Epidemiology, Department of Public Health and Primary Care, University of Oxford, Oxford OX3 7LF
Trevor W Lambert, statistician
Michael J Goldacre, director
Carol Edwards, research officer
James Parkhouse, study consultant

Correspondence to: Dr Goldacre.

BMJ 1996;313:19-24

Medical Council. Contact was made by postal questionnaire about a year after qualification—that is, for most doctors, at the end of their pre-registration year. After an initial mailing, up to three reminders were sent to non-respondents. The questionnaire included structured questions about choices of future long term career. Doctors were asked to state up to three choices in order of preference, to be as specific or as general as they wished, and to state whether their first choice was definite, probable, or uncertain. Choices were grouped for analysis into mainstream specialties based on those defined in the Todd report.⁵ A complete list of specialties included in each broad group is available from us. Data from previous surveys of the doctors who qualified in the United Kingdom in 1974, 1977, 1980, and 1983 were tabulated for comparison. These data were collected at a similar career stage, using similar questions and methods.¹ Tied first choices were given by a small number of doctors. The data for these were adjusted by giving each tied first choice a weight of one half (or one third in the rare cases of three tied first choices).

STATISTICAL METHODS

Career choices were analysed as percentages (with 95% confidence intervals when appropriate). Successive cohorts were compared using χ^2 statistics and adjusted residuals.⁶ An analysis of residuals was used because choices made between alternative careers are not independent of one another. Adjusted residuals were used because they give greater numerical precision than standard residuals.⁶ A logit model was used to investigate the relation between the effects of cohort and sex on career choice. The Mann-Whitney U test, corrected for tied choices, was used to compare differences between subgroups of doctors in their certainty about career choices because these were measured on an ordinal scale (definite>probable>uncertain).

Results

RESPONSE TO MAILINGS

Of the 3672 qualifiers in the 1993 cohort, 10 who were not on the medical register could not be contacted. A total of 3662 questionnaires were posted. Four doctors replied saying that they wanted to be regarded as non-participants, and we were told of one death. The effective study cohort therefore comprised 3657 doctors, of whom 53.3% (1949) were men. Completed questionnaires were received from 71.7% of the cohort (2621 doctors); 1297 of the respondents (49.5%) were men. The response rates in the 1974, 1977, 1980, and 1983 cohorts were 82.6% (1940/2350), 84.1% (2637/3136), 83.0% (2853/3437), and 82.4% (3168/3845) respectively.

Despite strenuous efforts to contact non-respondents, the response rate was lower in the 1993 cohort than in the earlier cohorts. We have only limited information about non-respondents to compare them with respondents—namely, their registration status with the General Medical Council, address, and sex. All non-respondents (and all except seven of the respondents) were provisionally registered at the time of the study. There was therefore no evidence that non-respondents included doctors who had decided not to register.

Current (March 1996) addresses showed that 33 out of 2621 respondents (1.3%) were abroad compared with 37 out of 1036 non-respondents (3.6%). The difference was significant ($\chi^2_1 = 19.9$, $P < 0.001$) but accounts for only a small number of doctors. Respondents and non-respondents differed in their breakdown by sex: 66.5% of men (1297/1949) and 77.5% of women (1324/1708) responded ($\chi^2_1 = 54.0$, $P < 0.001$). In each previous cohort a similar difference was found, widening with time. The percentages of men and women who responded were 82.0% (1410/1719) and 84.0% (530/631) respectively in the 1974 cohort; 83.4% (1764/2116) and 85.6% (873/1020) in the 1977 cohort; 81.2% (1839/2265) and 86.5% (1014/1172) in the 1980 cohort; and 80.1% (1905/2379) and 86.2% (1263/1466) in the 1983 cohort.

CAREER CHOICES OF QUALIFIERS IN 1993

Table 1 shows the doctors' first choice of future long term career. All first choices are included in this table, whether specified by the doctors as definite, probable, or uncertain. General practice was the most popular first choice (26% of all respondents), followed by the medical specialties (22%), the surgical specialties (17%), anaesthetics (8%), paediatrics (6%), and obstetrics and gynaecology (5%).

Differences between men and women in career preferences were significant when the 14 mainstream choices in table 1 were compared after exclusion of those who did not state a preference ($\chi^2_{13} = 237.8$, $P < 0.001$). There were also significant differences between men and women among the doctors who chose hospital practice in their choice of career within hospital practice ($\chi^2_{10} = 140.7$, $P < 0.001$).

By examining adjusted residuals we identified four specialties whose popularity differed significantly by sex as a percentage of all choices. Firstly, as table 1 shows, 17.5% of men chose general practice compared with 34.0% of women, a difference of 16.5% (95% confidence interval for difference 13.2% to 19.8%). Secondly, 26.1% of men chose the surgical specialties compared with 7.8% of women, a difference of 18.3% (15.5% to 21.1%). Thirdly, 6.7% of women chose obstetrics and gynaecology compared with 3.0% of men, a difference of 3.7% (2.0% to 5.4%). Finally, 4.9% of men chose paediatrics

Table 1—Numbers (percentages) of respondents from 1993 cohort of newly qualified doctors in United Kingdom specifying each mainstream specialty as their first preference

Mainstream choice	Total (n = 2621)	Men (n = 1297)	Women (n = 1324)
General practice	677 (25.8)	227 (17.5)	450 (34.0)
Medical specialties	564 (21.5)	303 (23.4)	261 (19.7)
Paediatrics	164 (6.3)	63 (4.9)	101 (7.6)
Surgical specialties	442 (16.9)	339 (26.1)	103 (7.8)
Accident and emergency medicine	69 (2.6)	36 (2.8)	33 (2.5)
Obstetrics and gynaecology	127 (4.9)	39 (3.0)	88 (6.7)
Anaesthetics	200 (7.6)	106 (8.2)	94 (7.1)
Radiology	55 (2.1)	31 (2.4)	24 (1.8)
Clinical oncology	31 (1.2)	11 (0.8)	20 (1.5)
Pathology	42 (1.6)	19 (1.5)	23 (1.7)
Psychiatry	109 (4.2)	55 (4.2)	54 (4.1)
Other hospital specialties	46 (1.8)	23 (1.8)	23 (1.7)
Public health medicine or community health	25 (1.0)	8 (0.6)	17 (1.3)
Non-medical career choices	36 (1.4)	19 (1.5)	17 (1.3)
Not stated	34 (1.3)	18 (1.4)	16 (1.2)

Table 2— Numbers (percentages) of respondents who specified each mainstream specialty as their first preference in five cohorts

Mainstream choice	1974	1977	1980	1983	1993
Men					
Total	1410	1764	1839	1905	1297
General practice	431 (30.6)	528 (29.9)	626 (34.0)	754 (39.6)	227 (17.5)
Medical specialties	341 (24.2)	393 (22.3)	340 (18.5)	290 (15.2)	303 (23.4)
Paediatrics	72 (5.1)	77 (4.4)	57 (3.1)	68 (3.6)	63 (4.9)
Surgical specialties	286 (20.3)	400 (22.7)	371 (20.2)	327 (17.2)	339 (26.1)
Accident and emergency medicine	8 (0.6)	4 (0.2)	3 (0.2)	9 (0.5)	36 (2.8)
Obstetrics and gynaecology	55 (3.9)	45 (2.6)	61 (3.3)	52 (2.7)	39 (3.0)
Anaesthetics	57 (4.0)	86 (4.9)	100 (5.4)	87 (4.6)	106 (8.2)
Radiology	18 (1.3)	18 (1.0)	37 (2.0)	42 (2.2)	31 (2.4)
Clinical oncology	6 (0.4)	13 (0.7)	18 (1.0)	23 (1.2)	11 (0.8)
Pathology	40 (2.8)	58 (3.3)	64 (3.5)	84 (4.4)	19 (1.5)
Psychiatry	47 (3.3)	50 (2.8)	60 (3.3)	72 (3.8)	55 (4.2)
Other hospital specialties	28 (2.0)	51 (2.9)	29 (1.6)	35 (1.8)	23 (1.8)
Public health medicine or community health	4 (0.3)	7 (0.4)	9 (0.5)	23 (1.2)	8 (0.6)
Non-medical career choices	4 (0.3)	11 (0.6)	5 (0.3)	12 (0.6)	19 (1.5)
Not stated	13 (0.9)	23 (1.3)	59 (3.2)	27 (1.4)	18 (1.4)
Women					
Total	530	873	1014	1263	1324
General practice	221 (41.7)	340 (39.0)	419 (41.3)	662 (52.4)	450 (34.0)
Medical specialties	94 (17.7)	148 (17.0)	159 (15.7)	137 (10.9)	261 (19.7)
Paediatrics	56 (10.6)	79 (9.1)	73 (7.2)	66 (5.2)	101 (7.6)
Surgical specialties	21 (4.0)	53 (6.1)	57 (5.6)	47 (3.7)	103 (7.8)
Accident and emergency medicine	3 (0.6)	3 (0.3)	6 (0.6)	9 (0.7)	33 (2.5)
Obstetrics and gynaecology	23 (4.3)	34 (3.9)	39 (3.8)	53 (4.2)	88 (6.7)
Anaesthetics	22 (4.2)	56 (6.4)	68 (6.7)	60 (4.8)	94 (7.1)
Radiology	7 (1.3)	19 (2.2)	28 (2.8)	27 (2.1)	24 (1.8)
Clinical oncology	8 (1.5)	10 (1.2)	14 (1.4)	11 (0.9)	20 (1.5)
Pathology	27 (5.1)	35 (4.0)	49 (4.8)	59 (4.7)	23 (1.7)
Psychiatry	22 (4.2)	45 (5.2)	35 (3.5)	58 (4.6)	54 (4.1)
Other hospital specialties	12 (2.3)	13 (1.5)	17 (1.7)	21 (1.7)	23 (1.7)
Public health medicine or community health	9 (1.7)	17 (2.0)	13 (1.3)	28 (2.2)	17 (1.3)
Non-medical career choices	3 (0.6)	8 (0.9)	4 (0.4)	10 (0.8)	17 (1.3)
Not stated	2 (0.4)	13 (1.5)	33 (3.3)	15 (1.2)	16 (1.2)
All respondents					
Total	1940	2637	2853	3168	2621
General practice	652 (33.6)	868 (32.9)	1045 (36.6)	1416 (44.7)	677 (25.8)
Medical specialties	435 (22.4)	541 (20.5)	499 (17.5)	427 (13.5)	564 (21.5)
Paediatrics	128 (6.6)	156 (5.9)	130 (4.6)	134 (4.2)	164 (6.3)
Surgical specialties	307 (15.8)	453 (17.2)	428 (15.0)	374 (11.8)	442 (16.9)
Accident and emergency medicine	11 (0.6)	7 (0.3)	9 (0.3)	18 (0.6)	69 (2.6)
Obstetrics and gynaecology	78 (4.0)	79 (3.0)	100 (3.5)	105 (3.3)	127 (4.9)
Anaesthetics	79 (4.1)	142 (5.4)	168 (5.9)	147 (4.6)	200 (7.6)
Radiology	25 (1.3)	37 (1.4)	65 (2.3)	69 (2.2)	55 (2.1)
Clinical oncology	14 (0.7)	23 (0.9)	32 (1.1)	34 (1.1)	31 (1.2)
Pathology	67 (3.5)	93 (3.5)	113 (4.0)	143 (4.5)	42 (1.6)
Psychiatry	69 (3.6)	95 (3.6)	95 (3.3)	130 (4.1)	109 (4.2)
Other hospital specialties	40 (2.1)	64 (2.4)	46 (1.6)	56 (1.8)	46 (1.8)
Public health medicine or community health	13 (0.7)	24 (0.9)	22 (0.8)	51 (1.6)	25 (1.0)
Non-medical career choices	7 (0.4)	19 (0.7)	9 (0.3)	22 (0.7)	36 (1.4)
Not stated	15 (0.8)	36 (1.4)	92 (3.2)	42 (1.3)	34 (1.3)

compared with 7.6% of women, a difference of 2.7% (0.9% to 4.5%). We then confined the analysis to choices made by men and women within the hospital specialties only—that is, excluding choices for other careers. Significant sex differences remained for the surgical specialties, obstetrics and gynaecology, and paediatrics and were found for no others.

COMPARISON OF CAREER PREFERENCES WITH THOSE OF PREVIOUS COHORTS

Table 2 shows the first choices expressed by cohorts of doctors who qualified in 1974, 1977, 1980, and 1993. We compared differences between successive cohorts, firstly, by considering all 14 mainstream choices, secondly, by comparing the choice of general practice with the choice of all hospital specialties combined, and, thirdly, by comparing the 11 mainstream hospital specialties for the doctors who chose hospital practice. To compensate for multiple testing, and to account for the non-independence of the three tests performed on each of four pairs of cohorts, we used $P < 0.004$ (approximately 0.05/12) as evidence of significant difference.⁷

The 1974 and 1977 cohorts did not differ significantly in career preferences ($\chi^2_{13} = 18.2$, $P = 0.15$). Each of the other three cohorts differed from its preceding one.

Compared with the 1977 cohort, the 1980 cohort showed significant overall differences in career preferences ($\chi^2_{13} = 38.7$, $P < 0.001$). These were accounted for by a significant increase in the percentage who chose general practice ($\chi^2_1 = 11.7$, $P = 0.001$). Differences in the comparative popularity of the specialties within hospital practice did not meet our criteria for significant change ($\chi^2_{10} = 23.8$, $P = 0.01$).

Compared with the 1980 cohort, the 1983 cohort also showed a significant overall difference ($\chi^2_{13} = 74.0$, $P < 0.001$), which was attributable to a significant increase in the percentage who chose general practice ($\chi^2_1 = 33.4$, $P < 0.001$) but without major change within hospital practice ($\chi^2_{10} = 23.1$, $P = 0.01$).

Compared with the 1983 cohort, the 1993 cohort showed significant changes in career choice overall ($\chi^2_{13} = 351.6$, $P < 0.001$), with a decline in the choice of general practice from 44.7% to 25.9% of doctors ($\chi^2_1 = 223.0$, $P < 0.001$) and a significant redistribution of choices within hospital practice ($\chi^2_{10} = 114.1$,

$P < 0.001$). The categories other than general practice or hospital medicine (community health, public health medicine, non-medical choices, and choice unspecified), taken together, were fairly constant at 2-4% overall across all cohorts.

COMPARING CHOICES MADE BY THE 1983 AND 1993 COHORTS

Between 1983 and 1993 the percentage of men who stated that general practice was their first choice declined from 39.6% to 17.5%. That of women declined from 52.4% to 34.0% (table 2). The logit model showed that the decline in choice of general practice was significantly greater for men than for women ($\chi^2_1 = 9.5$, $P = 0.002$).

Individual specialties whose popularity differed between the 1983 and 1993 cohorts, as a percentage of all choices, were identified by examining adjusted residuals. When men and women were considered together, the medical specialties, paediatrics, accident and emergency medicine, the surgical specialties, obstetrics and gynaecology, and anaesthetics all increased significantly in popularity while pathology decreased significantly. The increased popularity of obstetrics and gynaecology and of paediatrics was found mainly among women. The other changes were significant both for men and women.

For some doctors who do not choose general practice, the choice of specialty may be secondary to the primary decision to work in hospital practice. Given the large decline in choices for general practice, it is important to consider the choice of individual hospital specialties expressed as a percentage of all doctors who chose hospital practice. Adjusted residuals for these data showed that, within hospital choices, the medical specialties and accident and emergency medicine had significantly increased in popularity (from 26.1% to 30.4% and from 1.1% to 3.7% of hospital choices, respectively, between 1983 and 1993) and pathology had decreased (from 8.7% to 2.3% of hospital choices). Paediatrics, the surgical specialties, obstetrics and gynaecology, and anaesthetics did not show an increase when calculated as a percentage of all hospital choices.

By and large, the differences in career choices between men and women in 1993 were similar to those found in 1983 (table 2).

SECOND AND THIRD CHOICES

In 1993, 66.8% (867/1297) of men and 64.0% (848/1324) of women expressed more than one choice of career. This compares with 62.7% (1194/1905) and 61.4% (775/1263) respectively in 1983. The distribution of second and third choices by specialty in each year was similar to that of first choices in the year. In particular, there was no evidence that the specialties that declined in popularity as a first choice had become more popular as a second or third choice. In 1983, 21.5% (409/1905) of men and 22.5% (284/1263) of women specified general practice as a second or third choice. In 1993 the corresponding figures were 19.8% (257/1297) and 24.4% (323/1324). Pathology as a second or third choice fell from 5.5% (174/3168) in 1983 to 2.5% (66/2621) in 1993.

CERTAINTY OF CHOICES

At the end of the first year after qualification 31% of doctors said that their specified choice of future long term career was definite, 48% said that it was probable, and 21% gave a preference but said that they were uncertain about it (table 3). Women were less definite than men overall (Mann-Whitney U test, $z = -5.1$, $P < 0.001$), as they had been in earlier cohorts.¹ Those who chose general practice were more definite about their choice than those opting for hospital specialties

Table 3—Numbers (percentages) of respondents who stated that their first choice was definite, probable, or uncertain in 1993

	Certainty of choice		
	Definite	Probable	Uncertain
All respondents (n = 2586)	796 (30.8)	1250 (48.3)	540 (20.9)
Men (n = 1276)	448 (35.1)	598 (46.9)	230 (18.0)
Women (n = 1310)	348 (26.6)	652 (49.8)	310 (23.7)
All choosing general practice (n = 668)	266 (39.8)	308 (46.1)	94 (14.1)
All choosing hospital specialties (n = 1830)	521 (28.5)	921 (50.3)	388 (21.2)
Men choosing general practice (n = 224)	96 (42.9)	98 (43.6)	30 (13.4)
Women choosing general practice (n = 444)	170 (38.3)	210 (47.3)	64 (14.3)
Men choosing hospital specialties (n = 1010)	347 (34.4)	494 (48.9)	169 (16.7)
Women choosing hospital specialties (n = 820)	174 (21.2)	427 (52.1)	219 (26.7)

($z = -5.8$, $P < 0.001$). For example, 40% of those who chose general practice were certain about their choice compared with 28% who chose hospital specialties. This needs cautious interpretation because doctors nominating a particular hospital specialty were specifying a more detailed choice than those choosing general practice. To some extent, their lack of certainty may reflect indecision between hospital specialties instead of indecision about choosing hospital practice rather than general practice. Among those who chose general practice, differences between men and women in their certainty of choice were not significant (table 3; $z = -1.1$, $P = 0.27$). Among those choosing the hospital specialties, the men were significantly more definite than the women about their choice ($z = -7.1$, $P < 0.001$). Surgery and psychiatry were chosen with the greatest certainty.

The percentage of all respondents whose career preference was for general practice and was definite declined from 23.2% (735/3168) in 1983 to 10.1% (266/2621) in 1993. The figures for men declined from 21.6% (411/1905) in 1983 to 7.4% (96/1297) in 1993. Those for women declined from 25.7% (324/1263) to 12.8% (170/1324).

FACTORS THAT INFLUENCED CAREER PREFERENCE

Respondents were asked to rate factors of importance in their choice, selecting from a checklist, according to whether each factor had influenced their choice a great deal, a little, or not at all. They were asked to score as many factors as applied to them. The numbers of doctors who specified that each factor had a great deal of importance in their choice of career are shown in table 4.

Enthusiasm and commitment and self appraisal of skills and aptitudes held the highest two ranks overall. Financial prospects were the lowest ranking consideration and were not commonly regarded as an important influence on career choice. Hours, working conditions, and domestic circumstances were rated as important considerations much more commonly by those who chose general practice than by those who chose hospital specialties. Enthusiasm and commitment for their choice was a greater influence on those who chose surgical specialties than on others. Experience as a student and, notably, the influence of a particular teacher or department were much less of an influence on those who chose general practice than on others. Promotion prospects ranked fairly highly for hospital specialties outside the mainstreams of medicine and surgery. Inclinations before medical school were more important for general practice and the surgical specialties than for

others. With the exception of hours and working conditions—which women rated much more highly as an influence than men—there were no substantial differences between men and women in factors specified as important.

CHOICES OF CAREERS OUTSIDE MEDICINE

In 1993, 36 of the 2621 respondents (1.4%) stated a first preference for a non-medical career compared with 57 of the 10 598 respondents (0.5%) in the earlier four cohorts. Including second and third preferences, 128 out of 2621 (4.9%) specified a career outside medicine as one of their choices in 1993 compared with 182 out of 10 598 (1.7%) in the earlier years. These figures are from answers to structured questions that asked about specific career choices. In their free text comments 223 out of 1154 doctors (19.3%) said that they were considering or had considered leaving medicine.

Discussion

The response rate of those qualifying in 1993 was lower than that of previous cohorts. We think that junior doctors may currently receive more questionnaires than in the past and that there might be an element of "form filling fatigue." The higher response rate from women than men is similar to that in the past. Apart from this, we have no reason to believe that non-response rates might be related to choice of specialty.

GENERAL PRACTICE

The choice of general practice as a first career preference almost halved in 1993 compared with 1983. Less than one in five men and only one in three women gave general practice as their first choice. Only 7% of men and 13% of women said that they definitely wanted a career in general practice. The current balance of career grades shows that about three doctors are principals in general practice for every two who are hospital consultants.⁸ This means that, because of health service needs, many doctors currently expressing a preference for hospital practice will in fact have to enter general practice (if they remain in medicine in the United Kingdom). In general, newly qualified doctors in the 1990s have had greater experience of working in general practice than doctors who qualified in the 1970s and 1980s. Factors that may have turned young doctors away from general practice include their perceptions of job content and morale in general practice. Positive factors that may have led increasing numbers of doctors to choose hospital careers include the possibility of becoming a consultant

more quickly than in the past and being attracted by scientific developments in hospital specialties.

CHOICES MADE BY MEN AND WOMEN

Women were more likely than men to choose general practice in 1993, as in previous cohorts, and the gap is widening. We do not have systematic details on why our respondents did not pursue particular career choices. It was common, however, for women to comment to us that the hours and working conditions of hospital practice were a particular disincentive to them. Within hospital practice, established sex profiles in some specialties⁹ seem set to continue. Even in the 1990s, few women express a career preference for surgical specialties. Women who chose hospital specialties were also less definite about their choice than men. This may reflect women's uncertainty about whether their domestic and family circumstances will be compatible with hospital training. By contrast, men and women choosing general practice were similarly definite about their choice.

The discussion above considers the percentages of men and women who chose different careers within medicine. Consideration also needs to be given to the numbers of men and women. Many more women and fewer men are entering medical schools now than in earlier years. The number of women who become general practitioners will increase and the number of men will substantially decline. For example, in the 1980 survey 626 men and 419 women specified general practice as their first choice a year after qualification. The corresponding numbers in 1993 were 227 men and 450 women. The number of women who specified a career in surgery rose from 57 in 1980 to 103 in 1993.

OTHER CHOICES

Within hospital medicine the increased popularity of accident and emergency medicine is encouraging and may reflect local initiatives to recruit to a specialty with an acknowledged shortage of doctors. It may also reflect the emergence of a specialty with a clear career identity. Pathology is not currently regarded as a shortage specialty, but our data suggest a potential problem in recruitment. There are known shortfalls of applicants in psychiatry. Our data for anaesthetics and paediatrics, both currently shortage specialties, are encouraging.

The increasing percentage of doctors stating that they would consider leaving medicine is worrying.

There were greater differences in career choices between the 1983 and 1993 cohorts than between any other two cohorts. At least in part, this may be due to the longer time interval between the last two cohorts

Table 4—Factors specified as having much importance in influencing first choice of career by doctors in 1993 cohort

Factor	All choices (n = 2208)†	Specialty group of first choice				χ^2 Value‡
		General practice (n = 620)	Medical specialties (n = 479)	Surgical specialties (n = 381)	Other hospital specialties (n = 728)	
Enthusiasm or commitment: what I really want to do	1495 (67.7)	380 (61.3)	298 (62.2)	311 (81.6)	506 (69.5)	53.1*
Self appraisal of own skills and aptitudes	1156 (52.4)	305 (49.2)	250 (52.2)	203 (53.3)	398 (54.7)	4.2
Experience of jobs undertaken so far	1016 (46.0)	265 (42.7)	280 (58.5)	198 (52.0)	273 (37.5)	59.2*
Hours or working conditions	965 (43.7)	435 (70.2)	131 (27.3)	91 (23.9)	308 (42.3)	289.9*
Experience of chosen subject as a student	884 (40.0)	180 (29.0)	181 (37.8)	186 (48.8)	337 (46.3)	56.4*
Career or promotion prospects	652 (29.5)	142 (22.9)	143 (29.9)	99 (26.0)	268 (36.8)	34.0*
Particular teacher or department	422 (19.1)	42 (6.8)	112 (23.4)	114 (29.9)	154 (21.2)	97.5*
Domestic circumstances	409 (18.5)	225 (36.6)	55 (11.5)	32 (8.4)	97 (13.3)	184.3*
Inclinations before medical school	302 (13.7)	106 (17.1)	28 (5.8)	75 (19.7)	93 (12.8)	43.2*
Advice from others	299 (13.5)	76 (12.3)	77 (16.1)	56 (14.7)	90 (12.4)	4.8
Future financial prospects	265 (12.0)	83 (13.4)	49 (10.2)	67 (17.6)	66 (9.1)	19.7*
Other reasons	122 (5.5)	34 (5.5)	24 (5.0)	13 (3.4)	51 (7.0)	6.6

†Excluding non-medical and unstated choices and excluding doctors with tied first choices.

‡ χ^2 Test for heterogeneity comparing the four specialty groups in the preceding columns.

*P<0.001 (otherwise P>0.1).

than the others. The years from 1983 to 1993 were a time of profound change in the NHS, particularly in general practice. It is impossible to pinpoint precise times when changes occurred in the popularity of different careers or to know yet the extent to which current career choices in this cohort will be sustained.

We thank all the doctors who have participated in the study. We thank Karen Hollick, Janet Justice, and Alison Stockford for their accuracy and diligence in coding the data from the questionnaires.

Funding: The Medical Careers Research Group is funded by the Department of Health. The Unit of Health Care Epidemiology is funded by the Anglia and Oxford Regional Office of the NHS Executive.

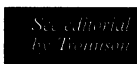
Conflict of interest: None.

- 1 Parkhouse J. *Doctors' careers: aims and experiences of medical graduates*. London: Routledge, 1991.
- 2 Department of Health, Welsh Office. *General practice in the National Health Service: a new contract*. London: Department of Health, 1989.
- 3 Secretaries of State for Health, Wales, Northern Ireland, and Scotland. *Working for patients*. London: HMSO, 1989. (Cm 555.)
- 4 Working Group on Specialist Medical Training. *Report 1992-3*. London: HMSO, 1993. (Calman report.)
- 5 Royal Commission on Medical Education. *Report*. London: HMSO, 1968. (Cmnd 3569; Todd report.)
- 6 Haberman S J. The analysis of residuals in cross-classified tables. *Biometrics* 1973;29:205-20.
- 7 Everitt BS. *The analysis of contingency tables*. 2nd ed. London: Chapman and Hall, 1994.
- 8 Wilson R, Allen P. Medical and dental staffing prospects in the NHS in England and Wales 1993. *Health Trends* 1994;26(3):70-9.
- 9 Allen I. *Doctors and their careers: a new generation*. London: Policy Studies Institute, 1994.

(Accepted 24 April 1996)

Posthumous storage and use of sperm and embryos: survey of opinion of treatment centres

Elizabeth Corrigan, S Elizabeth Mumford, M G R Hull



The ability to freeze-store the semen of men who are about to undergo treatment that will sterilise them or to store extra embryos resulting from in vitro fertilisation poses special ethical dilemmas. These include a woman's request to conceive a child after the death of her husband and a man's to have embryos carried by a surrogate mother if his wife has died (storage of unfertilised oocytes is not yet practicable). The issues are complex.¹

We see that the desire for posthumous conception is a loving expression in memory of the lost spouse, but the offspring has no such memory. In our centre we therefore refuse posthumous treatment and require patients to consent to this policy in advance of storage of sperm or embryos. Circulated guidance from the Human Fertilisation and Embryology Authority, however, disallows our policy or requires that gametes and embryos be moved to a centre willing to use them after the death of either progenitor (CH/94/9, September 1994). Yet the authority's interpretation of the law is not the only one possible. It would help to know the views of society at large and of interested groups. As a first step, we questioned licensed treatment centres about their views on such posthumous storage and use.

Methods and results

In 1995, 117 centres were licensed for treatment in the United Kingdom, including 106 licensed to store embryos or sperm (44 sperm alone, two embryos alone, and 60 both). All centres were sent a postal questionnaire and a second request if necessary. Several of the centres that were not licensed for storage assumed that they were not qualified to answer questions on posthumous treatment, so only the responses of the 106 storage centres were analysed. Of

these, 77 (73%) replied. The responses to questions on sperm and embryos were treated separately because in a few cases views differed about their posthumous use (table 1). Of those replying, 56 centres (74%) agreed to posthumous use of either sperm or embryos, but 27 of them (48%) did so with qualifying restrictions, which included good advance counselling, fully informed consent, and approval by an independent ethics committee. Three centres agreed to posthumous use only to produce a sibling for an existing child.

Comment

More than a third of the centres licensed to store sperm or embryos were opposed to posthumous use; about a fifth were also opposed to transferring stored sperm or embryos to another centre for such use. Even if the centres not responding to our survey all took a contrary view, a substantial minority believes it wrong to assist in the conception of a child after the death of a progenitor or to participate in such assistance by cooperating with a more liberal centre.

The Human Fertilisation and Embryology Act 1990 requires that "consent to the storage of any gametes or any embryo must...state what is to be done with the gametes if the person who gave the consent dies." We interpret that as permitting posthumous transfer, but not as making such transfer mandatory for treatment centres at the request of the surviving partner.

The act allows staff to abstain on conscientious grounds, and it does not oblige those who abstain to refer patients and transfer gametes or embryos to others with different views. It also requires centres to take account of "the welfare of any child who may be born as the result of...treatment (including the need of that child for a father)." The published code of practice of the licensing authority adds that in considering the welfare of a future child "centres should avoid adopting any policy or criteria which may appear arbitrary or discriminatory."² Arguably, such arbitrariness is less when centres act on a predetermined policy than when they choose later to act variably in each case. The original report of the Warnock committee, on which the 1990 act was based, "actively discouraged" posthumous treatment.³ We agree with that but seek clarification of the law and the wider views of society, patients, and the medical profession.

We thank all the licensed centres that responded to our survey.

Funding: None.

Conflict of interest: None.

1 Aziza-Shuster E. A child at all costs: posthumous reproduction and the meaning of parenthood. *Hum Reprod* 1994;9:2182-5.

2 Human Fertilisation and Embryology Authority. *Code of practice*. London: HFEA, 1993.

3 Committee of Inquiry into Human Fertilisation and Embryology. *Report*. London: HMSO, 1984. (Cmnd 9314; Warnock report.)

(Accepted 19 January 1996)

Centre for Reproductive Medicine, University of Bristol, Department of Obstetrics and Gynaecology, St Michael's Hospital, Bristol BS2 8EG
Elizabeth Corrigan, nurse-manager
M G R Hull, professor of reproductive medicine and surgery

Department of Law, University of Bristol, Bristol BS8 1RT
S Elizabeth Mumford, lecturer

Correspondence to: Professor Hull.

BMJ 1996;313:24

Table 1—Views of licensed storage centres in United Kingdom on posthumous use of sperm and embryos. Values are numbers (percentages) of centres

Policy	No of centres licensed for storage	Replied	Agree	Disagree	Undecided
Posthumous use:					
Of sperm	104	76 (73)	41 (54)	26 (34)	9 (12)
Of embryos	62	40 (65)	18 (45)	16 (40)	6 (15)
Posthumous transfer for use at other centre:					
Of sperm	104	76 (73)	45 (59)	17 (22)	14 (18)
Of embryos	62	40 (65)	27 (68)	7 (18)	6 (15)