Retention of young general practitioners entering the NHS from 1991–1992

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SUMMARY

Background. The supply of general practitioners (GPs) in the National Health Service (NHS) is dynamic and there are fears that there will be an inadequate number of doctors to meet the needs of the NHS. There are particular concerns about changes in the career trajectory of young GPs and what they mean for overall supply.

Aim. To identify predictors of retention among young, new entrant GPs entering the NHS between 1 October 1991 and 1 October 1992.

Method. Two-year retention rates of young (35 years of age or less) new entrant GPs have been modelled using a multi-level logit model. Retention is defined as young, new entrant GPs remaining in their initial health authority for two years or more.

Results. Two hundred and fifty-two (13.0%) members of the study group left general practice within two years of entry (i.e. were not retained). Sex (females had lower retention [95% CI = 0.43–0.75]), practice size (young GPs in larger practices had higher retention [95% CI = 1.10–1.29]), and belonging to a practice in one of 16 Greater London Health Authorities (which had lower retention [95% CI = 0.39–0.82]) were identified as major predictors of retention. Deprivation, measured at the individual GP patient list level, had a very slight association with retention ($P = 0.097$; 95% CI = 1.00–1.02). Deprivation measured at the health authority level (95% CI = 0.99–1.01) was not found to be a statistically significant predictor of retention ($P = 0.83$).

Conclusion. None of the statistically significant predictors of retention suggest any policy panacea to end this phenomenon. The challenge for policy is to learn to deal with the dynamic nature of the GP workforce with a non-crisis mentality.

Keywords: young GPs; entering GPs; career choice; GP retention rates; National Health Service.

Introduction

CONCERN that the general practitioner (GP) workforce may not be sufficient to meet the needs of a primary care-led National Health Service (NHS) has grown in recent years.[1-7] There are several related issues that comprise what is currently called the General Practitioner Workforce Crisis: decreased popularity of general practice as a career choice for medical students,[8-9] medical students leaving school before completion of their studies,[10] reduced uptake of vocational training schemes among qualifiers in medicine,[11] young principals quitting general practice,[1,8,12,13] low morale in GPs who are practising, early retirement,[1,12] and an increasing stock of vocationally-trained GPs who are not practising.[11]

In evidence given to the Review Body on Doctors' and Dentists' Remuneration, the British Medical Association reported that 25% of female GPs and 18% of male GPs left general practice within five years of gaining their qualification.[1] The patterns of movement in and out of general practice have been shown to be complex.[13] Some young GPs leave practice and return within a relatively short period of time; others may represent a long-term resource loss for the NHS.[13] Better understanding of the career patterns of young GPs is crucial if effective workforce policy is to be made. This paper analyses the retention of young (35 years old or less) GPs who entered practice in 1991 and 1992. The primary purpose of this analysis is to identify predictors of retention that are mutable to policy in order to outline policy options to address this phenomenon.

Method

The General Practitioner Census provides a comprehensive data source to study changes in the GP workforce. We used data for the period 1990–1994.[13] These data are aggregated by the STATS GMS division of the NHS Executive (which collects information from health authorities) and contain information on all qualified GPs in England and Wales. We have data for five points in time: 1 October 1990, 1991, 1992, 1993, and 1994. We expect the data to be accurate, but previous research has found small discrepancies (3–4%) between the actual mailing address and the database mailing address.[14]

The following two inclusion criteria had to be met for a GP to be included in the study group: i) the GP was a new entrant into general practice; and ii) they were 35 years of age or less when they entered. A new entrant is defined as a GP appearing in the database on 1 October 1991, but not 1 October 1990; and 1 October 1992, but not 1 October 1991. Thus, one year of data had to be 'sacrificed' (1 October 1990) to more closely approximate new entrants. GPs were followed-up for two years until 1 October 1993 or 1994, depending upon which year they entered. Each GP was followed-up for at least two years, but a GP not appearing in the database on 1 October 1990, for example, could have entered any time after that date but before 1 October 1991. Thus, the precise retention time is unknown but bounded on the low side by two years and on the high side by one day short of three years. GPs could only be a new entrant at one time during the study period. One thousand, nine hundred and thirty-three GPs met these study inclusion criteria.

Retention is defined at the health authority level. A new entrant GP was retained if they remained in the health authority into which they entered in 1991 and 1992. A GP was considered to have not been retained if they left general practice or changed health authorities (which is an extremely rare occurrence across all age categories);[15] virtually all of those who were not retained left general practice altogether.

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Statistical methods

Data on retention were available for 1933 new entrants (who entered in 1991 and 1992) who were followed-up for two years. The data had a hierarchical or clustered structure, consisting of units grouped within three levels, with GPs at level one, nested within health authorities (98 in England and Wales), which in turn are nested within regions (nine in England and Wales). The proportion of GPs retained after two years was modelled using a logistic regression model that included characteristics of the GP, the practice into which they entered, and the Family Health Services Authority (FHSA). This approach was used instead of a survival model, as initial analysis showed the assumptions of proportional hazard survival regression did not hold in these data.[16-17] It was felt that the rate of retention might depend on the FHSA characteristics, and so a multilevel logit model was used so that between-FHSA variation could be investigated. Multilevel logit modelling methods allow for this data structure to be accounted for in analysis to produce correctly estimated standard errors, as well as making it possible to model and investigate the influence of both GP and health authority characteristics on retention simultaneously, which is important from a policy standpoint.[18] A factor with nine levels was added for regions. An alternative type of analysis would have been to fit a factor with a level for each FHSA. This — with 98 health authorities — would have been cumbersome, statistically inefficient, and difficult to interpret. It would have also prevented analysis of the effect of regions. A multilevel logit model, described by Goldstein,[18] can be fitted using the specialty software package *Mln*. A 5% level of statistical significance was used for screening variables to include in a reduced 'best fit' model, which was used to calculate the adjusted predicted probability of retention.

Covariates included individual GP characteristics, practice characteristics, and health authority characteristics. GP characteristics were: age (continuous), sex, GP time commitment (full-time versus part-time at entry), and proportion of a GP's patients who triggered a deprivation payment (bands 1, 2, and 3 aggregated). The only practice characteristic was practice size (defined by number of partners). Health authority variables included the total 1991 population (measured in thousands), the health authority deprivation score (UPA91), and the proportion of the total health authority population that were ethnic minorities in 1991. Preliminary analysis suggested that health authorities located in London had lower rates of two-year retention of young, new entrant GPs, so an additional binary variable for the 14 health authorities in Greater London was added.

Results

There were 1,933 (1109 [57.4%] male, 824 [42.6%] female) young, new entrant GPs who entered general practice in the NHS on 1 October 1991 and 1 October 1992 (Table 1). Two hundred and fifty-two (13.0%) left their practice in their FHSA within two years of entering: 113 were male and 139 were female. Thus, 996 (89.8%) male and 685 (83.1%) female GPs, who were 35 years of age or less, and who entered general practice on 1 October 1991 or 1992, were retained (still practising) in their original health authority two years after entry. Table 2 provides selected summary statistics by retention status.

The estimates for the full multilevel logit model are given in Table 3, and the reduced model in Table 4. In the full model, factors that appeared to effect retention of young new entrant GPs were practice size, with greater retention in larger practices; and sex, with women having lower retention. There was a slight suggestion of greater retention of young, new entrant GPs who were given a greater proportion of patients living in areas designated

as deprived, resulting in deprivation payments for that GP ($P = 0.097$).

The rest of the factors tested were not important in explaining retention. The health authority variance term did not differ significantly from zero at conventional levels ($\chi^2_1 = 0.525$; $P = 0.469$) and was dropped from the model. Nor was there evidence of retention differences between regions ($\chi^2_8 = 10.4$; $P = 0.237$). Furthermore, neither the health authority level deprivation measured by the Jarman index ($P = 0.830$), nor the proportion of the health authority total population that were ethnic minorities ($P = 0.975$) were associated with differences in retention.

Terms were dropped sequentially from the full model by including only variables that had a 5% significance level. Table 4 gives the details of a simplified model specified after statistically non-significant covariates were dropped one by one from the model. In the reduced model, health authority location was included, with higher retention in health authorities outside London. The raw data show substantial variation in the rate of retention over the study period between health authorities, with a minimum of 45% (although this is only five out of 11 staying in one health authority) and a maximum of 100%. However, when sex (females less likely to be retained [OR = 0.57; 95% CI = 0.43–0.75]), practice size (new entrants in larger practices more likely to be retained [OR = 1.19; 95% CI = 1.10–1.29]), and the 'Greater London effect' (location in London less likely to be retained [OR = 0.57; 95% CI = 0.39– 0.82]) are controlled for statistically, health authority level variation is non-significant in both the full ($\chi^2_1 = 0.525$; $P = 0.469$) or simplified ($\chi^2_1 = 1.635$; $P = 0.201$) model. This suggests that differences between FHSAs, besides the 'Greater London effect', are not important in explaining retention of young, new entrant GPs.

The simplified 'best fit' model was used to calculate the predicted probability of a young, new entrant GP leaving a practice within two years, by practice location (inner London versus outside London) and by sex. The predicted percentage of inner London, young, new entrant GPs retained was 82% compared with 89% outside London. The predicted percentage of women retained was 84% compared with 90% for men.

Discussion

A glass can be described as half full or half empty; in the case of young, new entrant GP retention, the glass is really 85% full. The rate of non-retention of GPs is not high for a group of professionals in their late 20s and early-to-mid-30s. However, the loss of any GP could be vitally important for local supply and, from the perspective of macro NHS manpower policy, at least maintaining present retention rates is an important policy goal.

These analyses, taken as a whole, certainly identify no policy panacea to halt the phenomenon of young, new entrant GPs leaving general practice soon after entering. These results confirm, in a multivariate analysis, a sex differential among young GP career trajectories that has been identified anecdotally and descriptively in the literature.[1,11] From a workforce policy standpoint, the fact that females are more likely than men to leave general practice relatively soon after beginning a career is difficult to stop because it is likely to represent a broad secular trend related to professionals trying to balance work and family responsibilities. This phenomenon should be viewed as a reality of the current and future GP workforce. Recent analyses of the macro level GP supply situation identified female GPs, who do leave relatively early in their career, to be more likely to return to practice than their male counterparts who make early exits.[13] This means that the exits as well as the entries must be expected and policies developed to maximize the re-entry of GPs who do leave practice

Table 1. GP characteristics by retention status. This table includes only those young, new entrant GPs who could be followed for at least two years (those entering on 1 October 1991 and 1 October 1992). This sample was used for multivariate analyses reported.

Characteristic	Fewer than two years (%)	Two years and over (%)	All
Total	252 (13.0)	1681 (87.0)	1933
Sex			
Male	113 (10.2)	996 (89.8)	1109
Female	139 (16.9)	685 (83.1)	824
Time commitment			
Full-time	179 (12.0)	1313 (88.0)	1492
Not full-time	73 (16.6)	368 (83.4)	441
Practice size			
Single-handed	6 (22.0)	21 (77.8)	27
Two partners	33 (16.0)	173 (84.0)	206
Three partners	58 (17.7)	269 (82.3)	327
Four partners	57 (13 0)	381 (87.0)	438
Five partners	51 (13.3)	332 (86.7)	383
Six partners	28 (9.9)	256 (90.1)	284
Seven or more partners	19 (17.1)	249 (92.8)	268
Location			
Greater London	48 (19.0)	204 (81.0)	252
Outside Greater London	174 (10.4)	1507 (89.6)	1681

Table 2. Summary statistics by retention.

	Less than two years (n = 252)		Two years and over (n = 1681)		All (n = 1933)	
	Mean	SD	Mean	SD	Mean	SD
Age of GP at entry	30.5	2.07	30.4	2.03	30.4	2.04
HA population size (1000s)	677	358	699	362	696	362
Percentage ethnic minorities in HA population	5.68	6.99	4.63	6.13	4.77	6.25
Proportion of GP's list with deprivation payment (Bands 1, 2, and 3)	7.03	18.9	7.46	19.4	7.41	19.3

HA = health authority.

at a relatively young age. Learning to deal with this issue with a non-crisis mentality is important.

Larger practices appear to offer some 'protection' against young, new entrant GPs leaving general practice within two years. The model estimates a 10% to 30% decrease in the odds of a GP leaving their practice during these initial two years, when compared with another young GP from a practice that has one partner fewer, given they are of the same sex. The trend in the NHS is toward larger practice sizes, a policy that appears to be positive from the standpoint of retaining young, new entrant GPs. The general policy of the Medical Practices Committee of not refilling single-handed partnerships should continue. Exactly why larger practices appear to be related to longer tenure of young, new entrant GPs is not clear. These sorts of questions are not amenable to retrospective analysis of secondary data.

Neither the presence of deprived patients on a new entrant GP's patient list, nor health authority level deprivation as measured by the UPA91, was found to be a strong (negative) predictor of retention, counter to our *a priori* hypothesis. In fact, having more patients that trigger deprivation payments on a young GP's list was a positive predictor of retention that was statistically significant at the 0.10 level. There is a strong London effect that shows young, new entrant GPs who enter partnerships in inner London to be more likely to leave their initial practice within two years. While it is unclear exactly how this 'London effect' on young new entrant GPs operates, its geographical focus suggests that any policy response will require discretion among individual health authorities to determine the extent to which retention of young GPs is a problem and how idiosyncrat-

ic problems might best be addressed. Although statistically insignificant, once inner London is controlled for, the health authority level variation of the probability of early exit suggests that some health authorities outside of London may view the problem of retaining young GPs as important, in spite of our findings. Flexibility should be maintained to allow such health authorities to respond to early career exits by young GPs as needed on a local basis.

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Table 3. Full model: probability of retention for two years or more.

Variable	Odds ratio[a]	95% confidence interval	P value
GP characteristics			
Women	0.58	0.42–0.79	<0.001
Age (years)	0.97	0.91–1.04	0.369
Full-time	1.05	0.74–1.50	0.776
Practice variables			
Number of partners	1.21	1.11–1.32	<0.001
Deprivation	1.01	1.00–1.02	0.097
FHSA variables			
FHSA population	0.99	0.94–1.05	0.754
Greater London	0.65	0.28–1.48	0.299
Jarman UPA91	1.00	0.99–1.01	0.830
Proportion of ethnic minorities	1.00	0.96–1.05	0.975

[a]Odds ratio obtained from logistic regression, and P value indicates the exact level of significance for the odds ratio, obtained from a Wald chi-squared test. Note: Model control for region (base category Northern) using a fixed effect term and health authority using a random effect term. Results are not shown because there were no significant differences in retention by region (c^2_8 = 10.416; P = 0.237 for the overall test by region), or by health authority (c^2_1 = 0.525; P = 0.46 for the overall test of retention differences by health authority). The variance in retention between health authorities was entered on a scale of log odds.

Table 4. Simplified model: probability of retention for two years or more.

Variable	Odds ratio[a]	95% confidence interval	P value
GP characteristics			
Women	0.57	0.43–0.75	<0.001
Practice variables			
Number of partners	1.19	1.10–1.29	<0.001
FHSA variable			
Greater London	0.57	0.39–0.82	0.002

[a]Odds ratio obtained from logistic regression, and P value indicates the exact level of significance for the odds ratio.

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