Economic influences on GPs' decisions to provide out-of-hours care

Claudia Geue, Diane Skåtun and Matt Sutton

ABSTRACT

Background

Introduction of the new general medical services contract offered UK general practices the option to discontinue providing out-of-hours (OOH) care. This aimed to improve GP recruitment and retention by offering a better work–life balance, but put primary care organisations under pressure to ensure sustainable delivery of these services. Many organisations arranged this by re-purchasing provision from individual GPs.

Aim

To analyse which factors influence an individual GP's decision to re-provide OOH care when their practice has opted out.

Design of study

Cross-sectional questionnaire survey.

Setting

Rural and urban general practices in Scotland, UK.

Method

A postal survey was sent to all GPs working in Scotland in 2006, with analyses weighted for differential response rates. Analysis included logistic regression of individuals' decisions to re-provide OOH care based on personal characteristics, work and non-work time commitments, income from other sources, and contracting primary care organisation.

Results

Of the 1707 GPs in Scotland whose practice had opted out, 40.6% participated in OOH provision. Participation rates of GPs within primary care organisations varied from 16.7% to 74.7%. Males with young children were substantially more likely to participate than males without children (odds ratio [OR] 2.44, 95% confidence interval [CI] = 1.36 to 4.40). GPs with higher-earning spouses were less likely to participate. This effect was reinforced if GPs had spouses who were also GPs (OR 0.52, 95% CI = 0.37 to 0.74). GPs with training responsibilities (OR 1.36, 95% CI = 1.09 to 1.71) and other medical posts (OR 1.38, 95% CI = 1.09 to 1.75) were more likely to re-provide OOH services.

Conclusion

The opportunity to opt out of OOH care has provided flexibility for GPs to raise additional income, although primary care organisations vary in the extent to which they offer these opportunities. Examining intrinsic motivation is an area for future study.

Keywords

health care reform; out-of-hours medical care; primary care; workforce.

INTRODUCTION

The new general medical services (GMS) contract was introduced for general practices across the UK in 2004. One purpose was to improve recruitment and retention by re-shaping GPs' working conditions.[1] Part of the contract provided the opportunity for general practices to opt out of the responsibility for organising out-of-hours (OOH) care. In doing so, practices forgo an average of £6000 per GP each year,[2] representing 6.6% of the average net profit for contracted GPs in Scotland in 2005–2006.[3] By September 2006, 94% of general practices in Scotland had opted out of providing OOH care.[4]

Results from previous studies show that OOH commitments influence a GP's practice choice and that these choices can cause inequality in the distribution of GPs.[5] Using a discrete choice experiment to elicit Scottish GPs' preferences for different work attributes in 2001, Wordsworth *et al* found that GPs preferred jobs with less intense OOH commitments.[6] A recent survey by Audit Scotland reported that 88% of GPs were pleased to be relieved of 24-hour responsibility for their patients.[2]

***C Geue**, Dipl VW, research assistant; **D Skåtun**, PhD, research fellow, Health Economics Research Unit, University of Aberdeen, Aberdeen. **M Sutton**, PhD, professor, Health Economics, Health Methodology Research Group, School of Community Based Medicine, University of Manchester, Manchester.*

Address for correspondence

C Geue, Health Economics Research Unit, University of Aberdeen, Polwarth Building, Foresterhill, Aberdeen AB25 2ZD. E-mail: c.geue@abdn.ac.uk

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Responsibility for delivering OOH services was transferred to primary care organisations (NHS Boards in Scotland) by December 2004. The national telephone service NHS24 covers all NHS Board areas as the main point of access to OOH care. In addition, the Scottish Ambulance Service took over responsibilities for providing OOH services.[2] Most GP cooperatives were absorbed into local primary care organisations. In Scotland, OOH centres and minor-illness units have formed within existing hospitals or community health centres; they are staffed by GPs, other doctors, nurses, or pharmaceutical staff.[7] The organisation of OOH services varies across primary care organisations, which are free to choose how to provide OOH care but must ensure provision of professional medical care while controlling costs. They can directly employ GPs or other health professionals, pay GPs on a fee-per-hour basis for re-providing OOH services, or contract locum agencies.

Existing literature has concentrated on how primary care organisations have responded to this new responsibility and whether existing arrangements are sustainable and affordable. Audit Scotland's review[2] showed that most of these organisations rely on GP re-provision to sustain their OOH services. However, GPs' willingness to re-provide OOH services was thought to have declined since 2004–2005. The primary care organisations have freedom to set fees locally to reflect 'market forces', but concern has been expressed that rising GP incomes exacerbated problems with filling rotas.[2] However, the current authors can identify no study that has examined the factors influencing individual GPs' decisions to re-provide OOH care. It is not known how these decisions reflect personal characteristics, family circumstances, existing time commitments, and financial rewards. Therefore, it is difficult to see how primary care organisations can take these decisions into consideration when planning OOH provision. The current study investigates which factors determine a GP's decision to provide OOH services when their practice has opted out. This indicates how GPs have responded to this new flexibility in their work commitments and can provide valuable information for primary care organisations on service planning.

How this fits in

The new general medical services contract allowed general practices to opt out of responsibility for out-of-hours (OOH) care for their registered patients. The majority of practices have opted out, but some individual GPs re-provide OOH services to the primary care organisations with whom responsibility now lies. This study has shown that individual GPs' income–expenditure situations are a significant influence on the decision to re-provide OOH services. This suggests that the new contract achieved its aim of increasing flexibility, although opportunities to participate vary substantially across primary care organisations.

METHOD

A survey was conducted of all GPs working in the NHS in Scotland on 30 September 2005, according to a list provided by the Information Services Division of NHS National Services Scotland. The final mailing list comprised 4947 doctors, who were sent a questionnaire in February 2006. A total of 342 GPs were removed from the original denominator because they had either died, retired or left, were not known, or were on sick or maternity leave. After sending two reminders the final response rate was 52% (2380/4605).[8]

This response rate varies according to GP sex and age, and across primary care organisations: male GPs were less likely to respond than female GPs, and those under the age of 40 years (male and female) were less likely to respond than GPs who were 40 years of age or older. To correct for potential bias caused by differential response rates, data on all GPs were used to estimate a model of response probabilities to derive non-response weights, and analyses were weighted to the entire population.[9] The resulting weights varied from 1.51 (female GPs, aged 50–54 years in Lothian) to 2.83 (male GPs, aged under 40 years in Lanarkshire).

GPs who indicated that they did not want their responses linked to national datasets were removed (n = 278, 6%). There was no evidence that the responders who did not consent were significantly different from those who did.

Responders were asked to indicate whether their practice had opted out of OOH care and whether they personally provided OOH services. Some practices, mainly in remote areas, cannot transfer responsibility for OOH care due to lack of sustainable alternative providers.[2]

Using multivariate logistic regression, the study analysed factors that determined an individual GP's decision to provide OOH care. Odds ratios (ORs) in this study show the estimated effect of a one-unit change in each independent variable when other variables in the model are held constant. The study also analysed variations in the number of hours spent doing OOH work per week among those who undertook such work using a negative binomial regression model.

It was hypothesised that the decision to re-provide OOH services would depend on personal

and family characteristics, work and non-work time commitments, and alternative sources of income. The study also allowed for, and examined, variations across primary care organisations.

Personal and family characteristics

The effect of personal characteristics was modelled using sex–age group interaction terms and a dummy variable indicating whether or not the GP belonged to a minority ethnic group. No effect of partners' employment status was found but there was an effect if the GP's partner also worked as a GP.

Time commitments

Family responsibilities were expected to affect GPs' work–life decisions. Dummy variables were included reflecting the age of each GP's youngest child. These effects were measured relative to GPs with no children. These variables were interacted with the sex of the responder to identify differences by sex in childcare responsibilities. To measure additional effects of household size, the number of children under the age of 18 years was included. Caring responsibilities for older family members may influence the decision to provide OOH care, but this information was not available from the current data.

Mean number of weekly working hours (excluding OOH) reported by the responder was also included. To capture the fact that some GPs might be required to provide OOH training sessions, a variable was included reflecting whether GPs train registrars or undertake undergraduate teaching. A dummy variable indicating whether the GP held an additional medical post was also added; this could reflect either time constraints or job attachment.

Other sources of income

Levels of other income have been proposed as a major predictor of the decision to re-provide OOH services.[2] Measures of responders' own incomes and additional household income were included. The study did not include GPs' directly-reported income as this contains payments they had received for providing OOH services. The major component of practice income is the global sum payment for basic and additional services. This is determined by the practice's list size, weighted for deprivation, rurality, and the age structure of the population. Practice-weighted list size was divided by the number of GPs between which it was shared to provide a proxy for the level of income earned by each responder.

Dummy variables were also included reflecting whether the practice could dispense to its patients. Dispensing practices had a 21.7% higher average net profit in 2005–2006 than non-dispensing practices.[3] An indicator of whether the practice was operating under an alternative contract (sections 17C/2C — previously called personal medical services [PMS]) or the GMS contract (section 17J practices) was also included; GPs working under PMS contracts earn more, on average.[3] Conversely, salaried GPs earn less than those who are self-employed,[3] so a dummy variable for salaried status was included. To investigate whether these four indicators were valid proxies for practice income, self-reported income on these variables was regressed. All of the indicators exerted the expected and significant ($P<0.001$) effects on self-reported income (results not shown).

Variations between primary care organisations

A set of dummy variables was used reflecting the primary care organisation associated with each practice to capture variation between organisations with regard to locational and organisational factors. Each organisation was compared with the largest, most urban, and most deprived primary care organisation area in Scotland: Greater Glasgow and Clyde.

RESULTS

GPs' responses to the survey questions on OOH provision are shown in Table 1. Responders who reported that the question was 'not applicable' were mostly locum GPs (78.8%). Of the remainder, 88.0% of GPs (1707/1939) reported that their practice had opted out of OOH provision; analyses were restricted to these. Of these GPs, 40.5% (692/1707) reported they were personally involved in OOH work, with the vast majority (95.5% [661/692]) stating that their OOH commitment was 'acceptable'. Responses from the 1610 responders with no missing data were analysed further.

The distribution of responders across the variables and associated differences in OOH

Table 1. Practice and individual GP participation in out-of-hours service provision.

Has your practice opted out of out-of-hours work?	Do you personally do out-of-hours work?		
	Yes	No	Total
Yes	692	1015	1707
No	106	126	232
Not applicable	77	55	132
Total	875	1196	2071

Table 2. GP participation in out-of-hours provision by personal and practice characteristics.

Characteristic	Number in sample	Proportion in sample (%)	Weighted proportion providing out-of-hours care (%)	*P*-value for differences between categories
All	1610	100	40.3	
Sex				
Male	864	53.7	45.9	<0.001
Female	746	46.3	33.5	
Age group, years				
<40	441	27.4	41.5	
40–44	345	21.4	46.4	
45–49	330	20.5	45.0	<0.001
50–54	266	16.5	38.0	
≥55	228	14.2	25.9	
Member of minority ethnic group				
Yes	51	3.2	40.2	0.16
No	1559	96.8	50.1	
Has partner/spouse				
Yes	1475	91.6	40.8	0.29
No	135	8.4	36.1	
Age of the youngest child, years				
No child	634	39.4	31.7	
<5	307	19.1	45.3	<0.001
5–14	516	32.1	47.5	
15–18	153	9.5	43.7	
Number of children				
0	872	54.2	34.1	
1	447	27.8	45.3	<0.001
2	227	14.1	52.6	
≥3	64	4.0	49.9	
Partner/spouse is a GP				
Yes	226	14.0	30.5	<0.001
No	1384	86.0	41.9	
Spouse/partner income (£/per annum)				
None	731	45.4	46.4	
≤20 000	434	27.0	41.1	<0.001
>20 000	445	27.6	29.8	
Salaried GP				
Yes	164	10.2	29.3	0.001
No	1446	89.8	41.7	
Weighted list size per GP (patients)				
≤1500	1123	69.8	41.0	0.04
>1500	487	30.3	39.4	
Contract type				
PMS (Section 17C or Section 2C)	207	12.9	37.8	0.41
new GMS (Section 17J)	1403	87.1	40.9	
Dispensing practice				
Yes	89	5.5	61.0	<0.001
No	1521	94.5	39.4	
Average hours worked per week excluding on-call				
≤40	818	50.8	34.9	<0.001
>40	792	49.2	46.0	
GP holds additional medical post[a]				
Yes	651	40.4	47.0	<0.001
No	959	59.6	36.1	
Training and teaching responsibilities[b]				
Yes	723	44.9	45.6	<0.001
No	887	55.1	36.4	

[a]Other medical posts include: administration; management not related to the practice (for example, Health Boards); clinical services out with general practice; Royal College duties; medical committees (for example, British Medical Association, Local Medical Committee). [b]Training GP registrars, teaching undergraduate students. PMS = personal medical services. GMS = general medical services.

Table 3. GP participation in out-of-hours provision by primary care organisation.

Primary care organisation (NHS Health Board)	Frequency in sample	Proportion in sample, %	Weighted proportion providing out-of-hours care, %
Total	1610	100	40.3
Lanarkshire	112	7.0	16.7
Lothian	300	18.6	26.3
Borders	39	2.4	29.8
Forth Valley	98	6.1	38.2
Greater Glasgow and Clyde	260	16.2	37.7
Argyll and Clyde	121	7.5	47.3
Fife	99	6.2	40.5
Dumfries and Galloway	51	3.2	43.6
Tayside	116	7.2	46.3
Grampian	194	12.1	50.4
Ayrshire and Arran	103	6.4	59.8
Highland	102	6.3	64.3
Islands (Orkney, Western Isles, Shetland)	15	0.9	74.7

participation rates weighted for non-response were calculated (Table 2). Of those whose practice had opted out, a greater proportion of male GPs (45.9%) provided OOH services compared with their female counterparts (33.5%, $P<0.001$); older GPs were less likely to do OOH than their younger colleagues ($P<0.001$); and the participation rate was substantially higher for GPs with children ($P<0.001$). Differences between GPs were also significant ($P<0.001$) according to whether their spouse was also a GP, level of spousal income, the practice's dispensing status, whether they held an additional medical post, whether they were involved in training, and whether they were salaried or self-employed contractors.

There was a substantial difference in the percentages of GPs providing OOH services between primary care organisations (Table 3). The rate was highest in the most remote and rural organisations (Highland and Islands), but the lowest rate was not in the least rural organisation. The rate varies considerably between neighbouring organisations; for example, between 16.7% in Lanarkshire and 59.8% in Ayrshire and Arran.

In the multivariate analysis, male GPs with children were significantly more likely to provide OOH care compared with their male and female colleagues without children (Table 4). GPs who had a higher household income from other sources were significantly less likely to work OOH ($P<0.001$) and those whose partner was also working as a GP were significantly less likely to re-provide OOH care (OR 0.52, 95% confidence interval [CI] = 0.37 to 0.74). Of the four indicators for own income, only weighted list size per GP was significant; however, as expected, higher numbers of weighted patients per GP, indicating higher income, decreased the odds of OOH participation (OR 0.77, 95% CI = 0.61 to 0.96). GPs who held additional medical posts were significantly more likely to choose OOH re-provision (OR 1.38, 95% CI = 1.09 to 1.75), as were GPs who provided training to registrars or were involved in undergraduate teaching (OR 1.36, 95% CI = 1.09 to 1.71). The ranking of primary care organisations by their odds ratios in Table 4 is very similar to that for participation rates in Table 3. A joint significance test confirms the significance of the variation between primary care organisations, conditional on the other included factors ($F_{[12]} = 97.21$; $P<0.001$).

OOH participants spent a mean of 5.4 hours per week (standard deviation 5.1) doing OOH work; just 36.2% of GPs did over 5 hours' OOH work. Additional sources of income and whether GPs had trained registrars were significant predictors of the number of hours of OOH work, with both having a negative effect (results not shown). There were significant differences across primary care organisations.

DISCUSSION

Summary of main findings

Of those GPs whose practice had opted out of the provision of OOH services, around two-fifths participated in providing OOH services. The main influencing factor for re-provision was the primary care organisation in which the GP's practice was located. Participation rates were highest in rural organisations but also showed considerable variation between neighbouring organisations.

These differences between organisations remained significant once other factors that influence GPs' participation were controlled for.

An individual GP's decision on whether to re-provide OOH care appeared to be sensitive to household expenditure and other sources of income. Participation was higher for males than females and initially increased, then decreased, with increasing age. However, multivariate analysis suggested that these patterns were driven by increasing participation of males when there were children's expenditure needs to support. This suggests that re-provision can be used as a flexible method, like overtime, for GPs to raise additional income when they most need it. Participation was higher among those with other medical posts, training responsibilities, and longer working hours per week, which suggests variations in job attachment between responders rather than potential substitution between additional responsibilities.

Strengths and limitations of the study

The current study is large but, being cross-sectional, does not offer the opportunity to analyse how individual GPs responded to the introduction of the new contract. The majority of responses were received in February and March 2006, more than a year after OOH responsibility was transferred to primary care organisations. The response rate was 52%, which, although comparable to similar studies,[10] varies by GP sex, age, and geographical area. This differential response was corrected for using non-response weights but it is not certain that non-responders did not differ from responders in other ways.

The clinical and organisational nature of OOH care differs from the services GPs provide 'in hours' in terms of the location from which the GP can provide the service and the availability of support or administrative staff. This information was not collected and, therefore, the current study was unable to examine the effects of these factors. Other factors that were not measured, and have therefore been omitted, are GPs' professionalism and duty to patient care. These are important factors for future research.

Despite these limitations, the current dataset contains rich information on the characteristics and work commitments of GPs as well as their sources of other income. Use of a multivariate model explains a range of factors that may influence OOH provision simultaneously. A number of characteristics were identified across which there are significant differences in participation rates but these are proved to be confounded when included in a multivariate model. Thus, the authors are confident that they have identified the factors that determine differences in OOH participation.

Table 4. Logistic regression models of GP participation in out-of-hours provision.

Variable	Odds ratio	95% CI
Male, aged 40–44	1.149	0.693 to 1.907
Male, aged 45–49	1.264	0.737 to 2.166
Male, aged 50–54	0.950	0.541 to 1.668
Male, aged ≥55	0.536	0.298 to 0.966
Female, aged <40	1.486	0.795 to 2.776
Female, aged 40–44	1.193	0.610 to 2.331
Female, aged 45–49	1.096	0.547 to 2.196
Female, aged 50–54	1.127	0.548 to 2.318
Female, aged ≥55	0.736	0.329 to 1.643
GP from minority ethnic group	1.838	1.021 to 3.310
GP has spouse/partner	1.313	0.837 to 2.060
Number of children[a]	1.218	1.029 to 1.442
Female GP with child <5 years	0.958	0.551 to 1.666
Female GP with child 5–14 years	1.128	0.685 to 1.856
Female GP with child 15–18 years	1.149	0.562 to 2.347
Male GP with child <5 years	2.444	1.358 to 4.396
Male GP with child 5–14 years	1.553	0.968 to 2.489
Male GP with child 15–18 years	1.890	1.121 to 3.187
Hours worked, excluding on call	1.012	1.000 to 1.025
GP's spouse/partner is GP	0.519	0.366 to 0.736
Spouse/partner's income	0.989	0.983 to 0.994
GP is salaried	0.977	0.613 to 1.555
Practice weighted list size per GP	0.767	0.614 to 0.958
Practice has PMS contract	0.840	0.585 to 1.207
Practice has dispensing status	1.350	0.807 to 2.259
GP holds additional medical post	1.384	1.092 to 1.754
GP has training/teaching responsibilities	1.364	1.085 to 1.713
NHS Lanarkshire[b]	1.324	0.842 to 2.080
NHS Lothian	2.516	1.539 to 4.113
NHS Borders	0.508	0.218 to 1.182
NHS Forth Valley	1.062	0.565 to 1.997
NHS Argyll and Clyde	2.422	1.428 to 4.108
NHS Fife	0.997	0.607 to 1.638
NHS Dumfries and Galloway	0.858	0.505 to 1.458
NHS Tayside	1.655	1.087 to 2.520
NHS Grampian	0.282	0.154 to 0.516
NHS Ayrshire and Arran	0.504	0.340 to 0.747
NHS Highland	1.214	0.745 to 1.976
Islands primary care organisations	3.590	1.371 to 9.401
Number of observations	1621	
Log pseudo-likelihood	–949.06	
Pseudo R^2	0.1332	
Wald-test	$\chi^2(39) = 222.94$, $P<0.001$	

[a]GPs without children serves as the reference group and are not reported in regression results. [b]Greater Glasgow and Clyde primary care organisation serves as the reference group and is not reported in regression results. PMS = personal medical services.

Comparison with existing literature

In a previous survey of Scottish GPs' preferences for different job attributes,[6] female GPs expressed stronger hypothetical preferences than males for lower OOH commitments. The current analysis suggests that when faced with the real choice

female GPs were less likely to choose to re-provide OOH services. This finding is consistent with the general literature on patterns of overtime working.[11] However, further analysis suggests that this is caused by differential responses to the presence of children. Male GPs with children were significantly more likely to participate in OOH care, but no significant differences between males and females were found when no children were present.

Implications for future research

Variations in primary care organisations suggest that there is a substantial margin for them to influence GP participation in re-providing OOH services. In one semi-urban organisation 60% of GPs re-provided OOH services, suggesting a substantial potential source of labour supply to be explored in other organisations with lower participation rates. Research into whether this is the most efficient means of providing OOH services is required, but the current analyses suggest that moving to alternative types of provision should not necessarily be driven by a belief that this model is unsustainable.

Online version

Additional information can be found in the online version of this article

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Ethics committee

MREC for Scotland (Committee A) confirmed that this study did not require ethical review

Competing interests

The authors have stated that there are none

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